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Original Articles

DISEASE OF THE CEREBRAL VESSELS, WITH ITS PROBLEMS IN DIAGNOSIS.*

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MINNEAPOLIS.

Diseases of the arterial system in the brain often give rise to a misleading and confusing chain of clinical symptoms.

Not infrequently these symptoms are almost identical with those of well-known diseases, such as tumors, abscesses, cysts, and hemorrhages. The diagnosis is, therefore, empirical or impossible, particularly if no gross evidences of disease are found in accessible or palpable vessels.

Changes in the vessel wall may be dependent on a defective development of the media, which leads to aneurismal pouches, minute, moderate, or large. Atrophy, inflammation, or degeneration follows wasting disease. Acute arteritis from infective processes or intoxications, extensions of disease, septic or otherwise, from adjacent structures, and from external injuries, have been clearly demonstrated by bacteriologic and histologic investigations. Thromboarteritis, in which the brunt of the attack is sustained by the intima and media, may result in the organization of a thrombus and the partial or complete obliteration of the vessel lumen. Arteriosclerosis, a circumscribed or diffuse thickening of the arterial walls, especially of the intima, secondary to certain inflammatory or degenerative changes in the media, covers such a broad field and is so well appreciated that further description is unnecessary.

The following cases represent a form of vessel disease in which there are fairly well-defined focal manifestations, which might easily fall under the head of brain tumor or other gross disease, and yet not represent the ordinarily recognized forms of cerebral arteriosclerosis. These cases also illustrate disease of the arteries of the brain without other marked evidences of general vessel degeneration.

CASE 1.—L. W. R., male, aged 45, married, telegrapher.

Family History.—Father died of bronchitis at 48; mother died of old age at 77. One brother and one sister are living and well. One sister is dead; cause unknown. Two sons and a daughter are living and well, except that all are somewhat nervous.

Personal History.—General health is fair. He can not recall any severe illness. He had gonorrhea years ago; syphilis, he denied. He had been twice married; neither wife had any miscarriages. Twenty years ago, the patient fell, striking his spine, and sustained some sort of injury, which necessitated his being kept in bed in a prone position for ten weeks. There was apparently a complete recovery.

Present Disease.—Ten years ago he began to have jerking in his legs at night with occasional cramps. This condition grew worse, and seven years ago his arms also began to jerk, but after a time he improved in this respect, and his upper extremities are no longer affected, though he still has slight jerking in his legs, both day and night. About ten years ago he also began to lose the power of hearing in the left ear, and at the end of two years the loss was complete. A few months later, hearing in the right ear became dull, but he was still able to continue his work as a telegrapher until one morning he woke to find himself absolutely deaf. From that time till two years ago, he did clerical work. Ever since his deafness appeared, he has had noises in his head. There is constantly present a sound as of singing insects, and, in addition, there is at times a roaring like the fall of water, sometimes near, again far away, and at times there is a noise like that of the intermittent tooting of an automobile horn, sometimes high and sometimes low in pitch. This latter sound occurs only when he is nervous or worried. Sexual power has been weak for six years, and for the last year wholly gone. Two years ago he lost control of his bowels and bladder. After a time, this was regained, but is now again lost. During the last five years he has had attacks of dizziness from time to time, possibly due to digestive disturbances. When he becomes dizzy, he is also nauseated unless he assumes a recumbent posture. If he lies down, the nausea goes away, and if he closes his eyes, the dizziness also disappears. During the week before consulting me he had been dizzy always when rising from a recumbent posture. Four years ago he began to shuffle his feet when walking, and of late his gait is decidedly staggering. He still writes fairly well, but at times his hand jerks and the pen drops. He is confined to the bed and a chair practically all the time.

Physical Examination.—He is a medium-sized man, fairly well developed and nourished; skin, healthy in appearance; muscles, small. Temperature, 98.6 F.; pulse, 64, regular and normal in volume. Examination of heart and lungs is entirely negative. Radial and temporal arteries are soft. Abdominal organs are normal except for a considerable amount of gas in the stomach and intestines.

Urine: Clear, dark amber, strongly acid; specific gravity, 1.028; trace of albumin; no sugar; cylindroids and considerable mucus.

He complains of vertigo when he first rises, and says this is not worse when it is dark. He has an occasional slight headache—never any that is severe; no tenderness about the head. The eyes are deep set. There is no conjunctivitis, ptosis, lagophthalmos, nystagmus, or strabismus. Vision is fair. Examination of the ears is negative, except that he is absolutely deaf. Taste and smell are normal. No disturbance of cutaneous sensibility for touch, pressure, pain, or temperature can be demonstrated. The patellar reflexes are both increased; no ankle clonus. Marked Romberg sign is present with moderate ataxia in the hands; no Babinski sign. The muscles are all small. Those of the upper extremities are soft and flabby; those of the lower limbs are spastic; no atrophies; no fibrillary twitchings. He walks with a distinctly spastic, staggering gait.

Mental Condition.—His expression is sad but intelligent, and he has no peculiarities of dress or attitude. He is oriented

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as to time, place, and surroundings, comprehends what is said to him and answers relevantly. His memory is good. He is evidently much depressed and worries a great deal because he is unable to get about. At times he is extremely irritable; no hallucinations or delusions.

Course of Disease.—Oct. 26, 1907: He has been failing since last note. He says that he is losing flesh and that the power in his right hand is failing, though examination does not confirm the latter statement. Suffers severely from constipation and passes a limited amount of urine. His feet and legs become cyanotic and swollen if held in a dependent position. Almost ever since the last note, he has had a free flow of saliva, which, if swallowed, causes vomiting. He has a bitter taste in his mouth and has a constant feeling of distention and slight pain in his stomach. Taking food relieves this for a short time, but afterward seems to make it worse. Teeth are not tender, and gums are perfectly normal. Right pupil is a little larger than the left; both react normally for distance but sluggishly for light. Patellar reflexes are increased; no ankle clonus. He thinks that his eyesight is worse, and he is sure that he does not see so well during the dizzy spells as at other times. He says that he suffers greatly from mental distress.

Nov. 14, 1907: Much of the time the patient is extremely irritable and depressed. He walks with increasing difficulty and thinks that his eyesight is failing. He has no headache. The flow of saliva decreased for a time, but is again excessive.

Nov. 18, 1907: Dr. William R. Murray examined his eyes to-day and reported: "Lids and external ocular muscles normal. Cornea normal. Iris normal; reacts to light and convergence. Crystalline lens normal. Optic discs normal (lamina cribrosa prominent). Retinal arteries slightly contracted and pale; otherwise normal. Fundi show no pathologic changes. Visual fields (roughly) appear normal. Vision (R. and L.) for distance good. Reads fine print at ten inches. Examination of eyes negative."

Dec. 13, 1907: The man constantly complains of being weak; can not sit up except for short periods; he scarcely ever suffers from vertigo now. He has no pain except an occasional slight headache. Expression is bright. Sensibility to pressure and pain are about normal in upper part of body, but distinctly impaired in the legs and lower abdomen. Deep reflexes in the upper extremities are about normal, but are much increased in the legs. There is more or less spasticity everywhere, but especially in the lower extremities. No ankle or patellar clonus. No fibrillary twitching is noted; no contractures. There is no atrophy of tongue. He is still spitting very freely.

May 27, 1908: The man is in practically the same condition except that his ataxia is greater.

Case 2.—Male, aged 48, married, train dispatcher, was seen June 14, 1907.

Family History.—Father died at 66 of kidney trouble; he had been a heavy drinker. Mother is living at 76 and well. One brother died of dysentery, and one brother drinks to excess. The maternal grandfather died of paralysis. There is no other nervous or mental trouble in the family.

Personal History.—General health in early life was fair. He had typhoid in childhood and gonorrhea at 17. Syphilis was denied. He was very ill with mountain fever twenty-four years ago. At different times he had a number of abscesses. He drank some every day, but rarely to the extent of being intoxicated. He used tobacco to excess habitually, his cigar bill amounting to $35 a month. He was married at 22. His wife has never been pregnant. He has never been injured.

Present Illness.—About twenty-four years ago, when excited over a little family trouble, he had an attack of jerking of all the muscles, lasting one-half hour. A second similar attack, only more severe, occurred seven years ago, and again during a family quarrel. It lasted one hour, and was not accompanied by unconsciousness. He did not fall, but was lying down at the time. For the last sixteen years he has been failing in health, and fourteen years ago he noticed some unsteadiness in gait. This latter has gradually grown worse since. Sixteen years ago he first complained of the wind and the pillows hurting his ears, and not long after that he began to slowly lose his hearing. The explosion of a cannon-cracker is thought by the family to have hastened the latter. The trouble began in the right ear, and eight years ago the left also began to be affected. Eighteen months ago, the right ear had become absolutely deaf and eleven months ago he suddenly lost hearing completely in the left ear, the change occurring within a few hours. From the outset of his ear trouble, he was greatly bothered by noises in his ears, a constant roaring with intervals of the sound of blowing whistles and the tooting of engines. These have continued ever since. On one occasion, since he became deaf, his wife dropped her scissors and made considerable noise. He threw down the paper which he was reading, said he must have dropped his knife and began searching for it. He also said that at times, when holding his watch in hand, he could hear it ticking. His ataxia is now so great that he walks only with the assistance of a cane and, even then, with a distinctly staggering gait. His sexual power has been failing for sixteen years, and for one and one-half years he has been entirely impotent. He is much constipated and for several years has often gone from seven to ten days without a bowel movement. For the past year there has been some loss of bowel control. Four years ago his urine began to dribble at the end of urination, and for three years he has had no control whatever of his bladder. There has been a tremor of the hands for years, but not of such extent as to interfere with his writing until recently. About four years ago he had some attacks when his head would fall to one side or the other, and he would be unable to control it. These were of very short duration. He has had lumbar pain at times, but no headache. He always has vertigo if he moves suddenly, and frequently at other times also. He sleeps fairly well, but often talks in his sleep, and sometimes very loudly. He is a little more querulous and nervous of late, but there was no distinct mental change previously.

Physical Examination.—He is a rather large man, fairly well developed and well nourished. Muscles are of fair size but flabby. Temperature 98.4 F.; pulse 80 and of normal quality. Lung examination is entirely negative. He has no cough. Apex beat of heart is slightly outside the normal line; no murmurs. There is a moderate degree of thickening of the radial and temporal arteries. Abdominal organs are apparently healthy. Sexual apparatus is normal.

Urine: Clear, amber, acid; specific gravity, 1.024; no albumin; no sugar. Microscopic examination is negative.

He has an anxious, worried expression; does not complain of pain. Eyes are bright; both lids droop slightly and equally; there is moderate arcus senilis. There are no ocular palsies; no double vision; no nystagmus. Pupils are equal and react sluggishly to light, fairly well as to distance. Vision is good. Ophthalmoscopic examination is negative. He is absolutely deaf. Taste is normal, but smell is very much impaired, possibly on account of a prolonged condition of catarrh. There is no disturbance of sensibility to touch, pressure, or pain. The deep reflexes of the arms are increased, and of the legs very much increased; no ankle clonus. Babinski sign is uncertain. Abdominal and cremasteric reflexes are normal. There is a fairly well-marked tremor of the extended fingers; no paresis or paralysis of the face or extremities.

Course of Disease.—At the time of his examination he was advised to go to a hospital, but he declined to do so and remained for four days at a hotel. On July 8, while sitting at dinner, he suddenly became unusually dizzy. With assistance, he was able to get to his room where he lay down on the bed. Shortly after he began to scream loudly and continued this for some time, but when seen one hour later he was lying in bed in a stuporous condition. He was transferred to the hospital where his temperature was found to be 98.2 and his pulse 84. The next morning the following conditions were noted:

He is conscious, but has a dull, heavy look and responds slowly to whatever is said or done. Is distinctly emotional. When questioned as to his experience of the preceding day, he says that while seated at the table he experienced an unusual sensation in his head. This became gradually more pronounced and he feared that he would die. Says he screamed in order to obtain help. He can not describe the sensation in his head other than to say that it seemed like an "unusual commotion."

His temperature has ranged from 99.6 to 102.2 F., and his pulse from 100 to 110. There is some paresis of the left face, including a distinct drooping of the left lid. He appreciates touch in the left face but not the pricking of a pin. Tongue can be protruded straight. There is nystagmus of vestibular type with quick component upward and to left. Vision is very bad, probably on account of nystagmus. He has a constant sense of dizziness even in the recumbent posture. There is no ocular palsy. He can not swallow, and there is no movement of the throat on the left side. Deafness is complete. Apparently there is no disturbance of sensation in arms or body. There is possibly numbness in the right leg. Both knee jerks are exaggerated; double ankle clonus; no Babinski sign.

July 10, 1907: He has been failing since yesterday. Temperature dropped from 100 to 103.2 F., and pulse from 106 to 132. Nystagmus continues with some tendency to a rotary movement. He is very dizzy. Pupils react to accommodation and slightly to light. There are no ocular palsies. Left face is still numb and shows some motor impairment. He can not swallow and there is no movement of the left side of the throat. Left hand is very ataxic. No abdominal or cremasteric reflex is obtainable. Both knee jerks are exaggerated and right leg is rigid. Ankle clonus is present on the left side; no Babinski sign. He is unable to retain urine. He complains of no pain except slight backache. He d[illegible] at fifteen minutes past midnight.

Autopsy.—The postmortem was made the next day at noon.

Macroscopic Appearance: There are some adhesions at the apex of the right lung. Both lungs are congested and edematous and the bronchi are full of mucopus. There is a beginning pneumonia in the left lower lobe. Heart is moderately enlarged. There is an old endocarditis and a moderate degree of atheroma of the aorta. Liver is normal. Spleen is soft. Left kidney is normal in appearance. The right kidney shows marked atrophy and hydronephrosis. The ureter also is enlarged, but shows no constriction at any point, and there is no indication of distension of the bladder. Prostate is normal. The calvarium is very thick, especially anteriorly. Dura is not adherent; the pia-arachnoid is thickened and opaque, especially along the larger vessels, but is not adherent. There is no atrophy of the brain substances. Ependyma is normal. All the large vessels at the base of the brain are very much diseased; they are increased in diameter; the walls, except in the region of the aneurismal dilatation, are much thickened and show many patches of distinct nodular sclerosis. The basilar artery is almost uniformly distended and measures a little over one cm. in diameter. Its walls are thin and almost translucent, except at a few small points. The left vertebral artery is moderately enlarged; the right is greatly enlarged, and at the point of junction with the left measures 0.8 cm. in diameter. The right inferior cerebellar artery has three distinct saccular aneurisms in its course, the largest measuring 0.7 cm. in diameter. The left inferior cerebellar artery has one small saccular aneurism and one rather fusiform aneurism, the latter measuring 1.5 cm. in its greatest diameter. This entire vessel and its branches for some distance are completely obstructed by blood clots. There is a well-marked extravasation of blood into the pia-arachnoid in the region of distribution of this vessel. The left anterior cerebellar is very small and not aneurismal; the right, also small, is not dilated. The right and left posterior cerebral arteries are very much sclerosed, the left having two small saccular aneurisms, and the right one aneurism. All the other vessels, at the best, are very much thickened, and at points show irregular dilatation, but none have any distinct aneurismal formation.

Microscopic Examination: On section and microscopic examination of the vessels the intima is found greatly thickened in places, with well-marked areas of degeneration. There is very little elastic tissue in the intima. The media in many places is thin, and this is particularly true in the region of the aneurisms where it is almost wholly absent. The elastic tissue of the media is much broken up, and there is also well-marked round-cell infiltration of this coat, as well as of the adventitia. The thrombus is infiltrated with leucocytes. Section of small vessels from the cortex shows the ordinary changes of arteriosclerosis rather well marked.

CASE 3.—Male, aged 48, married, farmer, referred to me by Drs. Kilbride and Kelly of Canby, Minn.; was seen Dec. 16, 1907.

Family History.—Father died at 75 of paralysis; he had been temperate. Mother is living and well at 78. One brother died of nephritis at 40; one sister of tuberculosis and one sister of tuberculosis and nephritis. Four brothers and two sisters are living and well. The patient is married and has had six children, one of whom died in infancy; the others are well. There is no nervous or mental trouble in the family.

Personal History.—He was sickly in infancy, but after that period his general health was very good. He can not recall any severe illness at any time in his life. He has had occasional light attacks of rheumatism. Venereal diseases he denied. He has been temperate in the use of alcohol. Fifteen years ago he had a fracture of the right leg, which healed readily.

Present Disease.—Apparently he was perfectly well up to six months ago. At that time was working in the field and struck his left hand, just above the knuckle of the forefinger, with a wrench. The injury was slight, causing a moderate flow of blood, but no great pain. He continued at his work for a time, but at noon, when washing away the blood from the hand, he noticed a twitching of the first two fingers. This was slight, but not under his control. For three weeks longer he continued at his farm work, and during this period the twitching spread slowly to other areas. It was always worse when he was excited, and at such times appeared in parts which were entirely quiet when he was calm. The movements involved the left arm, shoulder, and neck, in the order named. Then the left foot and leg became affected, and when seen, Dec. 16, 1907, six weeks after the onset, there was twitching of the whole body, but more pronounced on the left side. He walked with difficulty and could scarcely button his clothes, especially if at all excited. He said that he had had vertigo at times for the past year. He was easily confused and cried at times.

Physical Examination.—He is a medium-sized man, fairly well developed and nourished. Heart and lung examination is entirely negative, except that his pulse rate is 88. There is a moderate degree of thickening of the radial and temporal arteries. His bowels move regularly and are entirely under his control, but he can not hold his urine so long as he could formerly. Sexual power is somewhat impaired.

Urine analysis is negative.

He has a rather dull, heavy expression, and complains of being weak. He has frequent attacks of vertigo, but can not associate them with any special time or act. He says that he has no pain. There is moderate arcus senilis but no ptosis, lagophthalmos, nystagmus, or strabismus. Vision is good with the aid of glasses. Examination of eye-grounds is negative. Thre is no defect of hearing and he has no subjective sounds. Sensation for touch, pressure, pain, heat, and cold is normal in all parts of the body. The patellar and Achilles reflexes are increased on both sides, but more so on the left. Ankle clonus is present on left side, but not on the right. There is well-marked ataxia in both upper and lower extremities, more marked on left than on right. All the muscles on the left side are spastic; there are no vibrillary twitchings. There is a constant, well-marked, fine tremor in left arm and hand, and at times this is seen in all parts of the body. It is increased by excitement or movement and is always worse on the left side. There is some incontinence of urine; none of feces.

Mental Condition.—Expression is dull and heavy. He has no peculiarities of dress or attitude. He talks but little and then only in response to questions. Is fairly well oriented as to time, place, and persons. His memory is much impaired, and he is slow to comprehend what is said to him. Often even a simple question must be repeated two or three times. His answers are only fairly relevant. He realizes that he is ill, but has no real insight into his mental condition. There are no delusions, illusions or hallucinations.

Course of Disease.—He was sent to the hospital and placed in bed. The next day his movements seemed about the same as when first examined, but the spasticity on the left side had increased and at times was much worse than at others. Occa-

sionally he was restless and, in an aimless sort of way, kept trying to get out of bed. His temperature was normal, but the pulse ranged from 72 to 96. There was involuntary urination. Two days after admission he had two convulsive seizures, the first one lasting eight and the second five minutes. The movements involved the entire body, but the left side more than the right. The next day he had another seizure of the same sort. The rigidity of the body was constant and much greater than on any other previous occasion. The left hand was tightly clinched. He swallowed with difficulty and was much more stupid. Temperature in the evening was 99.6 F.

December 20: There was not much change except that he was worse mentally, but on the following day he became partially paralyzed on the left side, and the right side became more rigid. His temperature was normal, but the pulse was 108 and weak.

December 23: He was quite unable to swallow, his stupor had increased, the paralysis on the left side was complete and the rigidity on the right side was much worse.

December 25: The following notes were made on this date: His expression is very dull. He talks little and only in whispers. Eyes are open, no ptosis or strabismus. Pupils are equal and react normally for light and distance. Tongue is dry and coated, protrudes slightly to the right. Right arm is rigid and strongly flexed, the fingers being drawn firmly into the palm. Right leg is extended and spastic, but less so than the arm. Left arm and leg are slightly spastic and almost completely paralyzed. The twitching is marked in the right hand, leg and foot; very slight in left hand and foot and, in the hand, is confined almost entirely to the thumb and forefinger. At times there is slight twitching in the right upper lip. He can move the right arm and leg but slowly and with difficulty. On the left side there are ankle clonus and greatly increased patellar reflex. On the right side there is no clonus but the patellar reflex is increased. Achilles jerk is increased on both sides. The head is distinctly drawn to the right side, though the muscles on both sides of the neck are firm. The left pectoral muscle is moderately contracted; the right firmly so. The right rectus abdominis is very firm; left flat. No abdominal reflex can be obtained on either side. Cremasteric reflex is absent on the left and slight on the right. There is involuntary passage of urine and feces. On account of his mental condition, it is impossible to determine anything as to sensibility. Pulse is weak and in the neighborhood of 120.

December 26: He was unable to swallow and was fed by nasal tube. Pulse ranged from 120 to 128, and was very weak and irregular. The right side had also become paralyzed. He was constantly in a condition of stupor. He died December 27, apparently from progressive failure of heart and respiratory action.

Postmortem Findings.—Dura is not adherent and is normal in appearance. Pia-arachnoid is thickened and very edematous in many places, not adherent to the brain. All the pial vessels are much distended with blood. The arteries at the base are thickened but uniformly so, and there are no calcareous plates. The right vertebral artery, at about the level of the first cervical nerve, shows a well-marked fusiform aneurism, 0.75 cm. in length and about 0.33 cm. in breadth. Almost directly opposite there is a saccular aneurism of the left vertebral 0.4 cm. in diameter. There is a moderate degree of atrophy of the cerebral substance in the anterior part of the brain. Section shows nothing except a general condition of hyperemia. Ependyma is smooth. On microscopic examination of the vessels there is a thickening of the intima and of the media with considerable increase of the elastic tissue.

The literature covering these specific findings is not very satisfactory.

The brain-tumor symptom-complex of arteriosclerosis is mentioned here and there by various writers, but no one author has given it his undivided attention. The majority of writers describe conditions under a general head and designate all vessel changes as arteriosclerotic.

Practically all cases reported seem to have ended by rupture of the vessel, with the usual manifestations of apoplexy. In Case 2 the patient died from obstruction of the circulation in the cerebellum and brain-stem. In Case 3 the patient died from rather uncertain causes. The most evident postmortem finding, other than the vessel changes, was edema.

Mummert[1] calls special attention to the rarity of cerebellar aneurisms.

Rindfleisch[2] speaks of the rarity of cases of aneurism of the basilar artery seen clinically, often symptomless until rupture occurs and then mistaken for ordinary apoplexy. If symptoms are present during life, a diagnosis of brain tumor is most commonly made.

Saathoff[3] refers to the position of the basilar artery whereby it is frequently exposed to undue pressure from indirect injuries.

Grunwald[4] gives considerable attention to the differential diagnosis of disease of the vessels at the base of the brain from other conditions with which it is likely to be confused.

Joseph Collins[5] has writen an exhaustive treatise on the different phases of cerebral arteriosclerosis, in which he refers to the brain-tumor symptom-complex.

Fisher and Brooks[6] discuss the relation of arteriosclerosis to diseases of the nervous system, but do not refer to aneurisms or other gross lesions of the basal vessels.

Bramwell[7] covers the field of intracranial aneurisms and reports cases with focal manifestations, but does not refer to cerebellar lesions or symptoms.

Barrett[8] has contributed an excellent article on the histology of cerebral arteriosclerosis with its clinical signs.

DISCUSSION.

DR. H. A. TOMLINSON, St. Peter: I have the records of about two hundred and fifty cases among the insane, and about thirty others, with regard to the postmortem findings in the cerebral blood vessels. My attention has been called particularly to the significance of the interference with the egress of blood from the brain, and I find that but little attention has been paid to this aspect of the subject. In the average individual, after 35 years of age, there is some piadural adhesion at the vertex, interfering with the emptying of the pial veins. In the defective and the degenerate, the tendency is for these adhesions to extend forward, finally involving the drainage of the area of the frontal lobes particularly. On account of the peculiar arrangement of the outlet of the pial veins into the sinus, the narrowing of the lumen of this outlet is a cause of serious obstruction; while the piadural adhesions along the median fissure, and at the base, interfere with lymph drainage. Therefore, aside from the diminished blood supply, resulting from the arteriosclerosis, there are the factors of the retained waste products, and the mechanical effect of lymph accumulation in the arachnoid space.

I have been interested to note two apparently different types of degeneration in the cerebral vessels: the one the usual productive periarteritis or endarteritis; and the other the not so common atrophic form of degeneration, in which there is apparent atrophy, beginning in the intima and extending to the media. This is the usual senile change, and just to the extent that it is presenile, do we find the symptoms resulting from chronic cerebral anemia: the confusion in mental effort, loss of memory and progressive muscular weakness, which disappears after a period of rest and improved metabolism, only to reappear on the resumption of active life.

1. Beitrag zur Aetiologie der Blutungen in Pons und Kleinhirn, Diss., Greifswald, 1904.
2. Deutsch. Arch. f. klin. Med., lxxxvi, 183.
3. Deutsch. Arch. f. klin. Med., 1905, lxxxiv, 384.
4. Ueber Aneurysmen der Gehirnarterien, Diss., Greifswald, 1906.
5. New York Med. Jour., June 9, 1906.
6. Jour. Nerv. and Ment. Dis., May, 1905.
7. Clinical Lecture on Intracranial Aneurisms and Meningeal or Extracerebral Hemorrhage, Clinical Studies, 1905-6.
8. Jour. Nerv. and Ment. Dis., April, 1905.

I believe that there is, under certain conditions, an angioneurotic edema, involving small areas of the cortex, which gives rise to focal symptoms that disappear as suddenly as they come; also, that in the so-called uremic palsies there is a local ischemia followed by hypostasis; because, in all the cases that I have had an opportunity to observe these conditions existed in other organs or parts, and particularly in the kidneys.

DR. C. EUGENE RIGGS, St. Paul: I find in all cases that the use of the manometer is a matter of much practical importance. I remember a case of arteriosclerosis which I saw about a year ago. The patient had had a slight hemorrhage evidently, recovered from it, but complained of a great deal of dizziness and vertigo and much general distress and the indefinite symptoms which arteriosclerotics describe. The blood pressure registered 275, and then the tubing of the manometer broke, so that I could not measure the pressure further. Treatment for the relief of pressure proved efficacious. The patient is living very comfortably, but of course is still arteriosclerotic. I have had a number of cases in which much benefit has been derived by the use of the well-known remedy which we are almost inclined to disregard because of our familiarity with it, calomel. Calomel has some influence on metabolism and probably thus affects arterial tension.

The clinical picture of arteriosclerosis is very confusing. There are undoubtedly many forms of pathologic manifestations included under this name. Whether or not arteriosclerosis is due to toxemia affecting the smaller vessels and the capillaries and thus increasing the tension and after a while causing the change in the vessels, is a matter of theory perhaps, but certain it is that in these cases if the patient is put to bed and rested, given calomel and put on a light diet, usually the blood pressure will come down, and the vertigo will be materially relieved; and it is a very common thing to find the patient going on for years without any material change. Dr. Clifford Allbutt speaks of a case which he observed for nineteen years in which there were various attacks of hyperpiesis which were relieved, after which the patient was comfortable.

DR. JULIUS GRINKER, Chicago: It is the cases which present focal symptoms which trouble us rather than the ones presenting general symptoms of arteriosclerosis. We are often confronted with these cases and are asked: "Is this a tumor, or is it cerebral arteriosclerosis?" Only recently I have been puzzled, as never before, by a case in which I was consulted as to whether or not there was a tumor of the cerebellum. The symptoms were very much like tumor symptoms, and resembled one of the cases which Dr. Jones so ably described—almost a sister case in every detail. It was very difficult to decide whether we had to deal with a tumor causing vertigo and incoordination of the cerebellar variety, a type of cerebellar arteriosclerosis. I believe that the only way we can learn something about these cases is by having as many postmortem reports as we are able to obtain, and then correlating the symptoms with the findings, because this subject needs revision and classification. The symptoms are rather vague; we are often unable to make a positive diagnosis, because cases presenting these symptoms may turn out to be neoplasm or internal hydrocephalus, or generalized arteriosclerosis or aneurismal dilatation of the arteries at the base of the brain.

DR. ARTHUR S. HAMILTON, Minneapolis: We have, of course, many cases of cerebral arteriosclerosis, but gross changes, such as were found in Dr. Jones' cases, and yet not including the well-known miliary aneurism, are, I think, not very common. There is a fair number of instances of aneurism of some one of the cerebral vessels on record, but they are rarely recognized until they are found postmortem. In most of the individuals a previous diagnosis of brain tumor has been made but, if no symptoms have been present during life, death, when it occurs, is usually assumed to be due to apoplexy from the ordinary causes. Very rarely, when the aneurism is large, an accurate diagnosis has been arrived at through the recognition of a bruit, but this is quite impossible when the aneurism is small. In at least one of Dr. Jones' patients the symptoms were evidently due, not to the size of the aneurism acting very much as a tumor, but to the disturbance of the circulation in important parts of the brain. Aneurism of the cerebellar vessels is particularly uncommon, probably because these vessels do not receive the full force of the blood pressure from the middle cerebrals, and because they are not often the seat of emboli which lodge and occasionally produce aneurisms behind them. Very recently I had an opportunity to examine the brain of a comparatively young woman, in whom, following the development of a very extensive vegetative endocarditis, an embolus had lodged in the right Sylvian artery and, directly below the point of lodgment, an aneurism, about the size of a pea, had developed.

DR. W. A. JONES, Minneapolis: I want to emphasize the varying degrees of disease of the vessels other than the generally accepted arteriosclerosis. It seems to me that these cases emphasize the necessity of differentiating between arteriosclerosis and other diseases of the vessels. I appreciate the very great difficulty there is in making a positive diagnosis in any of these cases. The blood pressure in these cases is not great—in fact, it is often either normal or below normal. I do not know whether it would be helpful or not to take the blood pressure. It may be that that was improperly omitted. The venous return to which Dr. Tomlinson refers is a very natural sequence of the condition of the blood vessels that we found in these cases; and the obliteration or the simple subsidence of what was formerly a vessel would of necessity give rise to great changes in the cerebral circulation.

CEREBRAL INHIBITION WITH RELATION TO MOTOR FUNCTION.*

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From time to time there have been cases under observation in the St. Peter State Hospital in which there was loss of capacity to coordinate muscular movements involved in prehension and locomotion. These cases could not be placed in any of the usual categories, because there was no evidence of organic disease in the general nervous system. In some of these cases the loss of control of muscular movement was so great that any voluntary action was impossible, while in others there was, apparently, complete palsy. We never have been able to determine the nature of the involvement of the central nervous system in these cases, because there has always been more or less complete recovery of functional capacity, and none of the cases has come to necropsy.

So long as these peculiar manifestations occurred in the ordinary course of brain degeneration, they were considered to be a part of the sequence to these degenerative changes, as I reported in two papers on the subject.[1] However, a number of cases have been under observation during the past three years, the course of which would indicate that extreme incoordination of voluntary movement, and even palsy, may result from simple cerebral inhibition.

The term inhibition is used here to define that function of the cerebrum which interferes between the afferent impulse and the direct motor response. During the progress of development, in the integration of the nervous system, this function has resided in the ganglia at the cephalic pole, and its development has been in a direct ratio with the growing complexity of the conditions in the environment of the animal; also *pari passu* with the multiplication of the specially organized areas

* Read in the Section on Nervous and Mental Diseases of the American Medical Association, at the Fifty-ninth Annual Session, held at Chicago, June, 1908.

1. Sensory and Sensory-Motor Disturbance Associated with Insanity, Jour. Nerv. and Mental Dis., October, 1892; The History of Three Cases of Peculiar Motor Manifestations in the Insane, Jour. Nerv. and Mental Dis., December, 1892.

for the reception and transmission of afferent impulses. Along with the increasing complexity of the organization has gone a corresponding amplification of the reflexes, and an increasing diversity of the functional elements of which they are composed; so that in the most multiform, there is a sequence, resulting from the correlation of a series of simple reflexes that are primarily antagonistic. Consequently, if anything occurs to interrupt this sequence, or disarrange the series, the antagonism of the individual elements becomes dominant. Therefore, along with the development of that part of the nervous system concerned with inhibition, there has gone the building up of another portion, the function of which is to maintain the sequence among the elements of the reflexes, and the proper relation in the series; that is, the function of coordination.

In experimentation on the lower animals with regard to the conduction of sensation, and the resulting reflexes, it is first necessary to separate the cerebrum from the rest of the nervous system, in order to prevent the inhibition of the movement following the stimulus, or its modification; and to reduce the reflex to its simplest form. As we go up in the animal scale, the association of the reflex with the coordinate becomes so intimate, and the functions of the general nervous system so interdependent, that we can not separate them completely; until, in the highest forms, where this inhibitory control is greatest, this separation of the two is incompatible with the continuance of life. In other words, inhibition becomes so dominant that any sufficiently powerful shock to the general nervous system, and particularly one involving mutilation or separation of the spinal nervous system from its connection with the cerebrum, brings about an immediate and permanent cessation of activity. Even in those animals in which this isolation of the cerebrum is compatible with continued life, the necessary operation must be performed with the most delicate care, in order to prevent permanent inhibition of function. That is, the act of mutilation must be as free as possible from the elements of a stimulus. So far as I am aware, the converse of these observations has not been made, or at least not formulated with relation to incoordination and disintegration of motion in the most highly developed form of organization.

Any attempt at formulation of the process involved in the generation and coordination of the motor reactions involved in the highly complicated reflexes concerned with the adaptation of the individual to the varying conditions in the environment must necessarily be speculative, and, judging from recent discussions, we have lost a great deal of our supposed certainty as to the area of origin of the motor impulses for the most complicated reflexes. It has always seemed to me an inevitable deduction from the mode of development in the nervous system, that as soon as the organism has developed to the extent that impressions of different kinds, and various degrees of intensity, begin to arrive simultaneously in the central ganglia, the first and chief function of the elements in the central area must be to inhibit the efferent impulse, until the afferent impulses can be related and coordinated. As the nervous organization becomes more complicated, so as to be able to adapt the activities of the organism to the conditions in the environment, the number of elements that enter into the composition of a coordinate movement becomes not only very great, but these elements are also very diverse; with the result that the movement becomes a series of related antagonistic reflexes, in a regular sequence. If anything occurs to break up this series, or to interrupt the sequence, the movement is incomplete, abortive, or entirely arrested. This can easily be illustrated in the new-born child. There is no coordinate movement except that involved in the act of nursing, which is a combination of motor impulses of the same type as the scratch reflex described by Sherrington. If the child is placed in the position to nurse, and just as it takes hold of the nipple, the bottom of either foot is stimulated, the movement of nursing is arrested. Again, if the child is nursing, and the stimulus is applied, the movement of sucking is arrested, to be renewed as soon as the stimulus ceases; provided the application of the stimulus is intermittent. If the stimulation is continuous, the child lets go the nipple and begins to cry. With each inspiration the voluntary muscles are relaxed; while with expiration they are contracted. At the same time the force of the heart beat is increased and the peripheral vessels are dilated. Here are a host of apparently unrelated reflexes brought into action, most of them antagonistic, but following each other in a regular sequence. The different compound reflexes may be tested in turn, but if any two antagonistic reflexes are stimulated at the same time, inhibition always results, to be followed by the gradual domination of flexion.

These observations have taught me that the new-born child is as good a subject in which to study the reflexes as is the decerebrate dog, and for the same reason, that is, functionally it is decerebrate. We may make accurate observations under experimental conditions, using the clinical opportunities that come to us in our everyday work, without the aid of elaborate laboratory apparatus; and I wish to impress on you that our institutions for the insane are unworked mines of neurologic wealth.

The development of coordinated movement in the infant follows the combination of antagonistic simple reflexes, so that they shall be supplementary to each other; but at any time these compound reflexes may be disintegrated by overstimulation of the flexion or extension element; or the movement may be entirely inhibited by the stimulation of an indifferent area having another form of functional activity. As the functional capacity of the cerebrum develops, these inhibitions become more frequent and active; until the response to the afferent stimuli is completely coordinated, and there is so-called voluntary motion. Thereafter, combinations of primarily antagonistic reflexes become more and more numerous, as the conditions in the environment become more uniform, and familiar by repetition; so that highly complex reflexes exist, apparently free from cerebral inhibition. But should any given combination of conditions in the environment change, so as to vary the intensity and relation of the resulting afferent impulses, the given impulse is first inhibited, and then its elements are recombined to meet the changed conditions. This is illustrated constantly in the futility and confusion that result when an individual is called on suddenly to meet unusual and untoward conditions in the environment, or when, for reason, he has lost the capacity to relate and coördinate the afferent impulses coming from accustomed environment.

Unfortunately, the motor reactions and reflexes have not been studied in the same detail in the human organ-

ism that they have been in the lower orders of animal life; so that there is a hiatus in our knowledge of the order in which cerebral inhibition has developed. Besides, we are prone to forget that there is no standstill in the functional capacity of the cerebrum. New modes of activity are constantly being integrated; combinations and recombinations; adaptations and readaptations are constantly taking place; increasing in complexity, or disintegrating into simpler forms. It is important, too, to remember when considering the development of the cerebrospinal nervous system, that there is a difference between anatomic arrangement and functional capacity. While anatomically there has been comparative uniformity, and in histology likeness, functionally there has been constant variation; often reversion; and sometimes almost complete disintegration of most complex reflexes. These variations are well illustrated in the modifications in functional capacity of the different special senses, by the artificial conditions which have grown into the human environment; so that the functional capacity of all the special senses has become more uniform, and instead of vision, smell, or hearing being conspicuously dominant, they share comparatively equally with the other senses the task of adaptation to the conditions in the environment; and yet there is neither anatomic nor morphologic change in the elements of their cerebral centers. So, too, it is possible that without anatomic difference or morphologic unlikeness in the elements of the brain cortex, there may be relative incapacity in the development of functional potentiality in the cortical areas of the highest forms of cerebral functioning; resulting in temporary or permanent failure under stress of the capacity for coordination and direction. Therefore, there may be disintegration of function and disassociation of the elements of complex motor activities, without lesion or morphologic change in the histologic elements of the cortex of the brain.

Sherrington[2] has shown in detail how the reflexes are built up, but he first eliminates the inhibitory function of the cerebrum, and he does not show how these reflexes are combined, controlled and the efferent impulses directed in so-called conscious effort by the cerebrum; although, in the last chapter of his book, he sums up the relation of the cerebrum to motor activity from the standpoint of our present knowledge.

From observations of new-born children I have learned that, in order to construct a compound reflex, it is necessary that all the afferent impulses should be received in their proper order and related in their habitual sequence. When this order and sequence are interrupted or incomplete, the efferent impulses are inhibited, and then the reflex is modified. From observations among the insane, it has been found that the progress of degeneration in dementia brings about a similar state; so that as the capacity for relation, coordination and direction are lost, inhibition becomes dominant. Then, in the presence of physical deterioration, or some cause of vasomotor disturbance, there are various degrees of inhibition, ranging from incoordination to palsy, usually in the functions of prehension and locomotion and next in the acts of articulation and deglutition.

The following case histories illustrate this contention:

Patient.—L. D., woman, born in Minnesota, 27 years old, a farmer's daughter.

Family History.—The paternal grandmother is still living; the other grandparents died in old age after healthy lives. The parents are still living and in good health. There are six children in the family, and all of them in good health except the patient. The parents were in good physical condition at the time of the conception of this child: she was healthy as a baby and during her childhood she began to menstruate at 14 years of age; the function was established without disturbance, and she was healthy until her nineteenth year, when she had "spasms" for two days, and since that time is said to have had "epilepsy."

Personal History.—Ten months before coming to the hospital it was noticed that when alone she would talk incoherently to herself. After this time she became suspicious, and when interfered with, violent; also noisy and profane. She believed that her family wanted to harm her, developed furtive suspicion, was sullen and obstinate, would attack any one who came near her, and destroyed her clothing and the furniture.

Examination.—She was admitted April 8, 1907. She was poorly nourished, the skin was dry and harsh, the flesh flabby. She weighed 103 pounds, although tall and large boned. The chest was depressed above the clavicles; the circumference 75 cm., expansion 4 cm. Resonance was impaired over the apices, sibilant râles were present in the interscapular region, and moist râles in the subscapular region. The heart was slightly enlarged, the sounds were clear and distinct; the aortic second sound was accentuated. There was no atheroma apparent. The abdomen was flattened, its walls thin. The tongue was heavily coated, the appetite poor, digestion impaired, and she was constipated. The labia minora were hypertrophied, the hymen lacerated, the uterus small and anteverted. Apparently the ovaries and tubes were healthy.

Urine: The urine indicated chronic renal congestion, and functional inadequacy of the kidneys. Indican was much increased, there was a small amount of albumin, deutero-albumose, acetone and diacetic acid, as well as numerous uric acid crystals.

Muscles and Reflexes: The muscles of the face were under poor control, but the movements of the eyes were coordinate, and the tongue was protruded readily in the median line. The pupils were 5 mm. in diameter, equal, and reacted to light and accommodation. The hand grasp was 48 in the right and 38 in the left, and there was no paresis. There was slight tremor about the mouth, intention tremor in the tongue, and slight rest tremor in the arms. The superficial reflexes were present; the knee jerks were exaggerated, and increased on reinforcement. There was no ankle clonus. Coordination was poor in both arms and legs. On account of the dulness and suspicion, common sensation and the special senses could not be tested.

Mental State and Motor Disturbance: She was untidy and indifferent; stooped, walked unsteadily, hopped, and dragged her feet. The expression was vacant, she did not respond to questions except by yes or no, but whispered incoherently to herself. She was alternately exalted and depressed; restless, irritable, and there was auditory and visual hallucination. When asked to do a thing she would twist herself about spasmodically, say "I can't," make a great many futile efforts and purposeless movements, and finally accomplish the coordinated movement. When alone she would grimace and gesticulate, and her body and lower limbs twitched. In trying to sit down, she would look about her, grin, grasp the chair, put her left knee on it, and then drop down with the left leg doubled under. She had a shuffling, unsteady gait, and was apparently in constant fear of falling. When food was given her she would make no effort to feed herself until after some of the food had been put in her mouth, when she would go ahead and eat a hearty meal. She could not take off or put on her clothing alone; while in getting out of or into bed, she would make a number of ineffectual efforts, with gesture and contortion; finally rolling and throwing herself on to her feet, or into the bed.

Course of Disease.—During the first month she was in the hospital she was in worse condition than when admitted; became disturbed, restless, noisy, and at times filthy. The incoordination was more extreme; so that efforts toward prehension and locomotion were almost entirely futile. In her efforts to go from place to place, she would twist her shoulders, throw

2. The Integrative Action of the Nervous System.

the elbows out from the body, make a few uncertain dragging movements with the feet; lean forward, then take several rapid steps backward; and finally with a propulsive impusle she would start forward on a run; finally settling into a walk in the direction she wanted to go. When asked to shake hands, she would slowly extend the arm in an uncertain movement, suddenly withdraw it, go through a number of gyrating movements of the body and arms; then after several futile efforts propulsively extend the arm and shake hands. The nurses frequently helped her to walk by moving her feet forward alternately for several steps, until she could coordinate the movement and walk without assistance. She gradually improved physically, but remained suspicious, irritable, obstinate; kept by herself, was usually sullen, and sometimes noisy, profane and disposed to be violent. Later the motor incoordination grew less, she could move about without much difficulty, became brighter and more cheerful, and began to occupy herself in various ways.

In December she weighed 140 pounds, was in good physical condition and much improved mentally. Her parents took her home and when last heard from there was no incoordination, and she was engaged in the usual activities of a farm household.

Patient.—J. M., man, aged 21, born in Minnesota.

Family History.—The father, a healthy, vigorous man, was, when a young man, a lumberman. The mother is, and always has been, neurotic. No definite information could be obtained concerning the grandparents.

Personal History.—The patient was born at full time, the mother was able to nurse him, and he had no serious illness during childhood. He was not so bright as his brothers and sisters, was obstinate, and not amenable to discipline. Punishment made him sullen, and neither stimulated nor deterred him. While apparently fond of his family, he never expressed any feeling for them, and did not actively share the joys and griefs of his brothers and sisters. He did not associate with other children, but stayed either with his parents about the house, or in the company of other adults. He was very selfish, inconsiderate of his parents, and even as a child responded to bribes only. Punishment did not affect him. From the time of the period of second dentition, he would, when alone, stand staring into space, apparently oblivious of his surroundings. Often he would stop in the middle of the street and look about him, apparently at nothing, for half an hour at a time; and he would stop outside of the house, regardless of the weather, for an indefinite period, unless he was called in. He was always in good physical condition, ate and slept well, and grew as rapidly as the other children. He spoke rapidly and explosively, did not stutter, but would leave out words, or repeat himself frequently. He did not take much exercise, but read a great deal, apparently only to occupy his time. He was naturally furtive and deceitful; disinclined to work; but ingenious in hiding his derelictions. He had no sense of responsibility or moral obligation, and although he learned easily, he would not go to school regularly, and did no work after he was 20 years old, but hung about dance halls and cheap theaters; he came in late at night and was never willing to tell even his brother of his movements. So far as could be found out he neither drank nor frequented houses of prostitution, but in the spring of 1905, when he was 21 years old, he wanted to marry a street walker.

Development of Incoordination.—In the autumn of 1905 his peculiarities became more marked, he became ugly and disposed to be violent toward the members of the family. In February, 1906, he came home late one night in a cab, said that he saw a man drop dead, and was so frightened that he was afraid to come home alone. After getting home he was afraid to stay alone. This fear persisted, he talked more rapidly, repeated oftener, and was sometimes incoherent. At this time it was also noted that it took him a long time to eat his food; also to dress and undress. He walked very slowly, was careful of his steps, and examined anxiously the space in front of him before taking a step. He would not go anywhere out of the house unless accompanied by his parents. He was placed in a hospital; soon became confused; later stupid; passed his urine and feces in bed; required constant personal care, and seldom spoke. He took little food, became emaciated, and either could not or would not use his arms or legs in prehension or locomotion. His parents, thinking he was going to die, took him home; but soon after getting him home he began to improve physically, looked after his own secretions, and was apparently not so timid, although he was very deliberate in his movements. It was soon after this time that I saw the young man in consultation.

Examination.—The patient presented the appearance and manner of a boy of 14 years of age, and there was practically no hair on his face. He was awkward, self-conscious; with extreme facial mobility, general restlessness and emotional exaggeration. In attempting to shake hands he struggled vainly for some time to bend the elbow and raise the hand; moving the other arm and the body, but he was unable to raise the arm or extend the hand. Finally, after a number of futile efforts, he suddenly put out his hand and shook hands. He also had considerable difficulty in letting go the grasp of the hand; going through a number of gyrations with the arms and contortions of the body before he could let go. He spoke rapidly, repeated almost every word, was apparently in constant motion; yet never succeeded in doing anything until after continued effort. When he undertook to pick up a knife, spoon or fork, the same series of unavailing efforts were made; and after the object was taken into his hand, another series of efforts was made before he could begin to make use of the object. After he was started, however, he could continue any combination of movements indefinitely, but he had the same difficulty in stopping that he had in starting. It took him sometimes fifteen minutes to start to move, but having started, he could move in a straight line indefinitely, but at a turn, or in stepping from one level to another, the same struggle took place. If asked to pick up a pencil and write, he would make a whole series of movements before he succeeded in grasping the pen. The pen in his fingers, there followed a spasm of the muscles of the hand, lasting about half a minute. Then he would start to write, getting along without difficulty, and writing fluently, either spontaneously or from dictation. It was as much of a task, however, to let go of the pencil as it had been to pick it up. In walking, if he saw some one coming toward him, or if, in crossing the street he saw a team coming toward him, he became rigid and could not move again until after considerable effort. Every thing he undertook was a repetition of the series of inhibitions and incoordinate movements here described. Nothing wrong could be discovered in the motor or sensory functions of the nervous system, and he was in good physical health, had a good appetite and slept well, and yet every voluntary effort was inhibited by an antagonistic reflex.

Treatment.—The treatment, aside from the employment of a tactful and strong-willed nurse, was the systematic retraining in coordinate movement of all of the muscle groups. In the course of three months the young man was much better, and he has slowly improved since that time, so that he can now go anywhere alone and care for himself. The mental enfeeblement is, of course, permanent; he is still very emotional, speaks very rapidly, and has practically no self-control.

Patient.—A. T. L., woman, born in England; single, aged 17 at the time of admission. The father, a farmer, is living; the mother died in childbirth. No other history of the family could be obtained.

History.—The patient, one of twins, was born after a difficult labor. The other child was born dead, and the mother died soon afterward. When nine months old the patint had convulsions and "severe fever." Following the convulsions she had a left hemiplegia, from which she gradually recovered. She began to menstruate at 14 years of age, and soon afterward developed epilepsy, the convulsions being nocturnal at first. She became dull, irritable, obstinate, and at times violent.

Examination.—When admitted to the hospital February, 1907, she was disturbed, noisy and violent. She was well-nourished, the flesh firm and vitality good. There was no evidence of disease in the chest or abdomen. There was some indigestion and she was constipated. The urine indicated renal inadequacy and there was some albumin and casts.

Muscles and Reflexes: The face was asymmetrical. The tongue was protruded readily, but deviated to the right. She stuttered. The pupils were dilated and equal. There was some twitching of the eyelids, slight intention tremor in the limbs; the knee jerk was exaggerated and increased on reinforcement; coordination was fair and there was no clonus. She was too dull and irritable to make subjective tests.

Course of Disease.—During the time of her residence in the hospital her history has been the usual one of a demented epileptic. Explosive outbreaks followed by periods of dulness, and occasional intervals of comparative brightness. In the spring of 1906 it was noticed that she was very awkward and was gradually losing the power of motion in the lower limbs, so that she stumbled and fell frequently. For some time previously she had been having an unusual number of convulsions, was irritable, obstinate, and frequently explosively violent. The weakness in the lower limbs increased, the paresis being apparently more marked in the extensors, until in June there was complete paraplegia.

Description of Paralysis: The paralysis was spastic and most marked on the left side. Each group of muscles, however, responded to stimulation and there was no reaction of degeneration. The paralysis slowly disappeared, but the incoordination remained for about a year. At present she is awkward and has a rolling gait. During the time she was in bed numerous tests were made of the coordination in the arms, with the result that movements of prehension were at first difficult, and at the time the paraplegia was most complete, impossible. Even now considerable effort is necessary for her to take anything in her hands. When she is dull the incoordination is still marked in both upper and lower extremities, but during her brighter intervals, she has very little difficulty in either prehension or locomotion. However, if she becomes disturbed for any reason, she begins to stagger, and if not supported will fall to the floor.

These three cases were chosen because they formed a sequence, showing the varying degrees in the development of inhibition, according to the extent of the primary defect in the nervous organization, and the advance of the process of dementia. I have seen these inhibitions in the terminal stages of general paresis, and they, for obvious reasons, are frequently present in hysteria. Indeed, in hysteria, the palsies and contractures are graphic illustrations of disintegrated compound reflexes, primarily due to inhibition.

There are, however, in every-day experience, frequent examples of inhibition, resulting from fear or other emotion; and it is to be noted that these examples are conspicuous just in proportion to the instability of the individual in whom they are manifested.

The pathology of this condition is obscure, and it has no morbid histology, so far as the brain cell is concerned. There is no means by which we may become familiar with the process involved, because even in those cases in which the incoordination or palsy persists the secondary degenerative changes obscure any primary alteration that might have been present. However, the evidence furnished by current knowledge of the physiology of the brain shows fairly conclusively that the function of inhibition is most highly developed in the cortex of the middle portion of the frontal lobes anterior to the precentral fissure. That is, the areas connected with the lower, middle, and upper portions of the anterior central convolution. It would seem that these areas are grouped together functionally with relation to motion, just as the inferior and superior parietal lobules are grouped with the subdivisions of the ascending parietal convolution with relation to sensation. As I have stated in another connection,[4] atrophy in the cortex, in the progress of degeneration, always begins in the convolutions of the operculum, and is usually most marked over the posterior portion of the second and third frontal convolutions on the left side, in right-handed persons. Again, in the defective, this is the part of the brain that is least well developed. I have found, also, that it is in this area, in the blood vessels distributed to the cortex, that atheroma, with white streaks along the vessels, appears first. Besides, the veins in the frontal area are always the most tortuous and distended, and their entrance into the sinus most narrowed by the piadural adhesions along the median fissure; so that there is not only interference with nutrition and elimination, but a mechanical cause for atrophy in the accumulation of fluid in the arachnoid space.

We have recently had the opportunity to see these conditions in two cases of cranial vivisection, in one case while searching for the assumed cause of mental degeneration in an old cranial injury. Although the site of the injury was over the left superior parietal lobule, the atrophy was about the insula. The arachnoid space over the frontal lobes was distended with fluid, and there were white streaks along the vessels. The brain did not pulsate. There was no evidence of change at the site of the injury, except some thickening of the outer table of the skull. This patient, a man, was confused, irritable, often denuded himself, and wanted to "get away from here." That is, there was reversion to the animal tendency to seclusion.

The other case was one of epileptiform convulsions, with confusion and explosive outbreaks of violence, procursive, and the sequence to visual and auditory hallucination. The convulsions followed a severe attack of typhoid fever, during which delirium had been severe, and the convulsions had continued for twelve years. They had been infrequent at first; then occurred in groups at irregular intervals. These intervals became shorter, and about a year before coming to the hospital the patient was noted, when alone, to laugh and talk incoherently to himself. About three months before he was admitted the convulsions became rather frequent and the mental disturbance active. The convulsions, although usually general, began in the muscles of the right side of the face. After the convulsion he was very much confused for several days. During one of these periods of confusion, in a procursive explosion, he jumped out of the window, ran some distance from home, and hid in an old barn. It was after this escapade that he was committed to the hospital.

When the cranial flap was turned down on the left side, an area of thickening in the dura over the operculum was found, and underneath a retention cyst in the pia. The brain bulged into the opening and the convolutions were flattened. The arachnoid space over the frontal lobes was distended with fluid, there were white streaks along the vessels, and the veins were distended and tortuous. The brain did not pulsate, until after pushing a trocar into the lateral ventricle and draining out considerable fluid. In this case there was not much atrophy, but the convolutions were flattened by the intraventricular pressure—the periods of confusion corresponding with the accumulation of fluid resulting from the hypostasis following the convulsion.

In neither of these cases was there any incoordination, and both patients were men in middle life. They are referred to here to show the condition of the brain in acute mental disturbance in the course of chronic

4. The Motor Degenerative Sequence in Dementia, THE JOURNAL A. M. A., Oct. 27, 1906.

degenerative change, and because they suggest the probability that in all cases of confusion and stupor there is pressure from an increased amount of fluid in the lateral ventricles; while in the cases that are disturbed the fluid is probably over the convexity.

In my experience inhibition and incoordination occur only in those cases in which the degeneration is primary and begins during adolescence, that is, when degeneration begins before development is complete. In these individuals the higher functions of the brain are necessarily imperfectly developed, with the consequence that coordination and direction are not completely organized. Therefore, anything that lowers vitality may put these functions in abeyance, and leave inhibition dominant, just as in the normal individual unusual and untoward conditions may operate to produce the same result in the undeveloped and inexperienced.

IMPERFORATION OF THE LACHRYMONASAL DUCT IN THE NEW-BORN, AND ITS CLINICAL MANIFESTATIONS.*

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The common clinical manifestation of obstruction to the lachrymonasal duct in the new-born has been usually described under the term "congenital dacryocystitis," a very unsatisfactory one as a cystitis is not usually present, and when present is of secondary origin. Jackson[1] has recently written on the subject under the title of "Delayed Development of the Lachrymal-nasal Duct." an entirely proper term, in a restricted sense, but not intended to cover all the conditions which may give rise to the symptoms of so-called congenital dacryocystitis.

Until the appearance of the paper of Peters[2] but little consideration had been given this interesting and important subject and it is only within the past decade that frequent references to it are to be found in literature. Few of these are by American authors, and these mostly within the past three or four years. Historically, it is of interest to note that in the first edition of the Graefe-Sämisch Handbuch, Schirmer states that until Critchett published his cases, infants at the breast were considered exempt from dacryocystitis (Kipp). Kipp[3] says his statistics show that 10 per cent. of all cases of dacryocystitis, among which were several cases of phlegmon of the sac, occurred in children, under 1 year of age. But it was not until the appearance of the paper of Peters that the subject was broadly considered, and a causal relationship established between the clinical phenomena and the developmental peculiarities of the lachrymal passages. The investigations of Rochon-Duvigneaud,[4] Vlacovitch,[5] Stanculeanu,[6] and others, established from anatomic research the existence of structural abnormalities as well as delayed development as causes.

As it is the author's purpose to present principally the clinical side of the subject and to emphasize the method of treatment which he considers best meets the indications, no extended account of the embryology of the tear passages will be given.

EMBRYOLOGY.

The accepted view of the development of the lachrymonasal canal is that in the young fetus there exists a groove between the external nasal, the frontonasal and the maxillary processes, extending from the eye to the outer border of the nasal opening. The nasal duct arises as a thickening of the epidermis along the line of the lachrymonasal groove. This forms a solid ridge, which separates, except at each end, and forms a solid cord (Ryder). This cord becomes converted into a canal by a separation of the epithelial cells. The resulting débris, up until the seventh month or later, fills the canal with a gelatinous mass.

ETIOLOGY.

The possible causes of the condition manifesting itself as a discharge from the puncti, a distention of the sac or an abscess in the new-born are sixfold: (1) Delayed separation and necrosis of the epithelial cells forming the cord from which the canal is formed. (2) Retention of the separated cells through imperforation of the septum between the lachrymonasal duct and the nasal chamber. (3) Through obstruction due to annular folds of the mucous membrane which may form at any point within the duct, Huschke's and Hasner's valves. (4) Faulty development of the cartilages (D. Gunn[7]). (5) Partial occlusion by pressure of inferior turbinate. (6) Stenosis from pressure exerted on the bones of the face during instrumental labor. (The last group is a suppositional one, suggested by Peters' observation that in one of his cases there were marks of the forceps over the nose on the side corresponding to the discharge from the punctum.)

The majority of the cases doubtless fall under the second group, as here the cause is one for which the anatomic possibility exists in every fetus. It would seem probable that this affection might be found proportionately more frequently in the prematurely born as the septum is usually present until shortly before birth, but Stanculeanu[6] found the condition of so-called congenital dacryocystitis present only four times in twenty embryos at the seventh month, the period previous to which, according to this writer, the lachrymonasal duct is never patulous. He believes that this observation overthrows the classical theory as to the pathogenesis of this condition. He was, however, unable to demonstrate an infection to explain the cases that he did observe; but Rochon-Duvigneaud[4] holds that to produce this condition there must be an exaggerated proliferation of the epithelium of the canal. Morax believes that infection first takes place after the birth of the child, and therefore considers the term "congenital dacryocystitis" incorrect.

COMPLICATIONS.

A distention forming a diverticulum at the lower part of the sac is an associated condition, the presence of which, often suspected from the clinical phenomena (Vossius,[8] D. Gunn,[7] Addario) has now been demonstrated in section by more than one investigator (Rochon-Duvigneaud,[4] Vossius[8]). This abnormality may be due to a faulty development, or as is more often the case, by distention of the duct by retained epithelial débris and mucous secretion. The latter, as pointed out

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* Read in the Section on Ophthalmology of the American Medical Association, at the Fifty-ninth Annual Session, held at Chicago, June, 1908.

1. Ophth. Rec., July, 1907.
2. Klin. Monatsbl. f. Augenheilk.; also Ztschr. f. Augenheilk., 1899.
3. Trans. Am. Ophth. Soc., N. Y., 1879.
4. Arch. d'ophth., February, 1899; February, 1900.
5. Beitr. z. Augenh., 1892 (Nagel's Jahresb., ii).
6. Arch. d'ophth., February, 1900.
7. Ophth. Rev., February, 1900.
8. Beitr. z. Augenh., I, 1891.

by Bochdalek, forming a consistent mass, may, in itself, obstruct the lumen of the canal and hinder egress to the nose. Mayou[9] has shown that throughout development the lower end of the lachrymal duct is extremely small and remains so at birth, being partially occluded by pressure of the inferior turbinate bone. That a catarrhal or even purulent conjunctivitis may be excited by the contents of the lachrymal sac was demonstrated by Ollendorff's[10] cases and by the cases of Gunn,[7] where the inflammation of this membrane at once subsided when the duct was made patulous.

Lachrymal abscess figures as a sequel to atresia of the duct. D. Gunn[7] has seen five cases of this nature in infants ranging in age from nine days to six months, in which the method and result of treatment left no doubt as to the origin. Mayou[9] has treated eight cases occurring in the first few weeks of life the result of secondary infection from ophthalmia neonatorum or from organisms which may gain entrance to the lachrymal sac. Van Duyse,[11] Selenkowsky[12] and others record like cases.

SYMPTOMATOLOGY.

It needs but a brief chapter wherein to describe the symptoms by which congenital obstruction of the lachrymonasal duct presents itself. Immediately, or within a few days after the birth of the child, a small amount of white or yellowish-white discharge is noticeable at the inner angle of the eye. The conjunctiva is usually normal, or but slightly injected. There may or may not be fulness over the sac. Pressure applied over this region may cause a gelatinous white fluid to exude from the punctum. If there has been distention, the pressure may cause the fulness to disappear, accompanied or not by a discharge from the puncti or from the nose. In some instances there is associated a catarrhal conjunctivitis, which occasionally takes on a purulent type.

If proper treatment is withheld, under the influence of winking, the conjunctival secretions penetrate and infect the gelatinous contents of the sac and excite an inflammation which may continue as a subacute condition or kindle an acute process.

The affection is very rarely bilateral.

BACTERIOLOGY.

As might well be expected from the circumstances, a great variety of micro-organisms have been found in the secretion. Merconti[13] saw a bacillus resembling the coli communis. The gonococcus of Neisser was found by Antonelli[14] and Mayou,[9] the pneumococcus by Hirsch[15] and the *Staphylococcus pyogenes aureus* by Selenkowsky,[12] and the Morax-Axenfeld bacillus by Mayou. Ball[16] states that the xerosis bacillus, the pneumobacillus and the *Bacillus fetidus ozena* have all been found.

PROGNOSIS.

This is undoubtedly good in a great majority of instances, as it has been shown that in those cases where there is either an incompletion of the cleaning up process or an imperforation of the thin diaphragm at the inferior meatus, Nature, in time, corrects the trouble; but at any stage in the process, infection of the contents of the canal may determine an inflammatory process, leading to abscess formation, if immediate drainage into the nose is not secured. An injury to the cornea, or a marasmic ulceration of the cornea, might endanger the safety of the eye, as evidenced by Selenkowsky's case of phlegmon of the tear sac in the new-born in which the *S. pyogenes aureus,* of a highly virulent type, was present in large numbers. Purulent conjunctivitis may be set up by infection.

Considering that one careful observer has found that 25 per cent. of his cases of dacryocystitis occurred before the tenth year, it is likely that chronic dacryocystitis in the child may be looked on as a possible sequel to the congenital obstruction.

DIAGNOSIS.

To those familiar with the occurrence of the affection, its diagnosis presents no difficulties; but to the general practitioner, alert to possible occurrence of gonococcal conjunctivitis, the presence of a white secretion in the eye, just after birth, is a disturbing symptom. The absence of inflammatory phenomena, with puffiness of the lids, the benignity of the course, the usual monolateral development, and the scantiness of the discharge, should ease his mind, and if it does not, a microscopic examination of the discharge would.

Terson[17] has seen in a prematurely born, but well developed female child, a hemispherical fluctuating tumor, of about the size of a hazelnut, overlying the right lachrymal sac. It was absolutely irreducible and unattached to the skin. The nature of the cyst was problematic. According to Terson, the possibility of such a tumor being a meningocele, an encephalocele, or of the nature of a true prelachrymal serous or fatty cyst, must be borne in mind. The elder Terson removed from an adult the anterior portion of a prelachrymal cyst which was entirely independent of the healthy lachrymal passages, yet proved, histologically, to be made up of tissue normal to the lachrymal sac.

According to Terson the differential diagnosis between prelachrymal cysts of various kinds, and so-called congenital dacryocystitis is extremely difficult. In certain cases it must rest entirely on the irreducibility of the tumor.

TREATMENT.

Varied opinions are held concerning the proper management of these cases. Some surgeons (Weeks,[18] Jackson,[1] Peters,[2] Panas, Terson,[17] Valude[19] and others), believing that as the condition is one which, in the vast majority of instances, will correct itself in time, presumably without exciting any secondary disturbance, advise a simple collyrium, the use of solutions of silver, of pressure, and massage, until Nature has asserted herself, or for several months before employing operative procedures, Ollendorff,[10] Koster,[20] Cutler,[21] Rochon-Duvigneaud,[4] Parsons,[22] Bochdalek, Mayou and others[23] employ probing or syringing. Peters has, at times, used probes. Parsons, who holds a decided opinion as to the injurious effect of probing in the adult, apparently makes an exception in treating this affection in the young, as he states that a single probing usually brings

9. Roy. London Ophth. Hosp. Rep., xvii, 246, January, 1908.
10. Ophth. Klin., Jan. 20, 1907.
11. Ann. Soc. de méd. de Gand, 1892, lxxi, 11-19.
12. Vestnik oftalmol., xix, No. 1.
13. Atti d. r. Accad. d. fisiocrit. di Siena, 1892.
14. Quoted by Vossius, Ann. de méd. et chir. inf., 1905.
15. Arch. Ophth., 1907, xxxvii, 61.
16. Modern Ophthalmology.
17. Arch. méd. de Toulouse, 1904, 306-310.
18. THE JOURNAL A. M. A., Dec. 10, 1904, p. 1760.
19. Bull. Soc. de pédiat. de Paris, 1899, i.
20. Graefe's Arch., Nov. 5, 1905.
21. Arch. of Ophth., May, 1903.
22. Brit. Med. Jour., Feb. 23, 1907.
23. Fejer: Arch. f. Augenheilk., February, 1907; Rabinovich: Russk. Vrach., St. Petersb., 1902, i, 1206-1208; Kamneff: Vrach. Gaz., St. Petersb., 1902, ix, 29; Levy: Paris Thesis; Jemsolinski: Vestnik oftalmol., 1903, xx; Pechin: Arch. d'ophth., 1905.

about a cure. Mayou[9] believes that aspiration fails to clear the duct when there is congenital narrowing, and says that this view is further borne out by the clinical fact that, if one of these patients "is seen before an abscess forms, one careful passage of a probe is generally sufficient to effect a cure." Jackson, in quoting Weeks'[18] advice simply to cleanse the conjunctival sac and protect the parts until Nature has had a fair opportunity to establish a passage, and if this has not occurred at the end of two months to slit the canaliculus slightly and pass a small Bowman probe, states that he would not limit to two months, or even six months, the period in which it is proper to try milder measures, provided the symptoms are controlled by such treatment.

A successful method, not recommended by any writer, was witnessed by Copez. According to Van Duyse,[11] this author saw a lachrymal tumor rapidly cured by the nurse applying mouth suction to the nose of the infant.

As the possible results of delayed opening of the tear passages may be the occurrence of infection, with its usual sequelæ and dangers, it does not seem to the author a wise procedure to wait on Nature an indefinite period to eliminate this menace; especially as the therapeutic measures advised in the palliative treatment include the continued use of organic salts of silver at home, thus adding to the former dangers the one of argyrosis, the use of massage, a measure to which Ollendorff[19] ascribes the blame for the occurrence of necrosis in one of his cases; also, seemingly, disturbance of the nutrition of the infant (Cutler[21]).

No doubt the danger of allowing Nature to effect the cure would be slight if the patient could be kept under constant supervision, but this is rarely possible, especially when the treatment may be giving no tangible results.

As it seems to be the practice of some of these clinicians to use probes to overcome the obstruction when the expectant treatment has failed, it would appear to me that some such procedure is indicated at once, when simple pressure over the sac fails to give permanent relief. Maternal pride shrinks from displaying a pussy-eyed infant to the critical public, and the author has received from no one more grateful thanks than he did from a mother whose infant had been treated expectantly for weeks, and was at once cured by probing.

The result secured by probing in the first case of my series was so brilliant that I pursued the same course in my subsequent cases, and, with one exception, with the same success, namely, disappearance of the trouble after a single probing. In the exceptional instance it was necessary to repeat the probing three times.

Doubtless, for those unaccustomed to passing probes, it would be wiser to counsel measures requiring less skill. For this reason, syringing has been recommended by some, and while it is possible in some cases to force a passage in this way, it does not seem to me to be less difficult than probing, unless the baby be etherized, a measure which I have found unnecessary in passing probes.

Probing here is done under different circumstances from those in lachrymal obstruction in the adult. As a rule, no resistance is met with, and the probe readily follows the natural passage, which, according to Mayou,[9] is inclined much more backward than it is in the adult, a probe making an angle of about 45 degrees with the forehead when passed through the duct.

DISCUSSION.

DR. EDWARD JACKSON, Denver: The classification given under the heading of etiology covers the ground thoroughly. But if we consider the lachrymal passages in general, including the adjoining bony and cartilaginous structures as well as the soft parts, all of the causes enumerated, except the conjectural one of pressure of the face during instrumental labor, would be included in faults of development of the passages. Generally the fault is merely a delay in reaching normal development. Failure to develop a lumen, converting the rod of epithelium, which generally marks the site of the lachrymal passages, into a tube, might occur at any point. Most frequently it occurs at the nasal end of the passage; but probably in an important proportion of cases it is one of the so-called valves that fails to become pervious. Some such structures are generally present at some stage of development, but mostly they become pervious before the lachrymonasal septum.

The condition is most likely to be confused with conjunctivitis in the new-born; not with gonococcus conjunctivitis, but with certain subacute or chronic forms that are not rare. In these cases of conjunctivitis the discharge is whitish or gray, the conjunctival sac is likely to present some accumulation of tears, and the persistence of the condition is quite suggestive of lachrymal disease. One is scarcely justified in making the diagnosis of lachrymal obstruction in the new-born unless there is actual evidence of accumulation in the sac and regurgitation of the matter on pressure.

Knowing, as we do, the strong tendency to continued development of the passages and the probability of ultimately securing in these cases completely normal lachrymal apparatus in the end, without operative interference, I watch for complications, and so long as they do not arise avoid any operative interference other than frequent gentle pressure over the lachrymal sac. I have not seen any case of staining from silver salts in infants; but the use of silver preparations is not a necessary part in the expectant treatment of infantile lachrymal obstruction. Solutions of boric acid or sodium chlorid used to cleanse the eye at frequent intervals probably serve the purpose equally well. It is but right that the parents of an infant presenting this condition should be fully informed of the nature and probabilities of the case, and allowed to choose whether or not any operative measure should be resorted to. At the same time they should be informed that the condition could probably be relieved by a simple probing, and that complications might arise which would render operation urgent. When mechanical interference is to be resorted to I prefer the passage of a probe of moderate size through the temporarily dilated punctum. This is not wholly without risk even in skilful hands, but the risk from attempting to force a passage with fluid from a syringe is at least equally great. Syringing has been looked on as quite safe and conservative, but the permanent staining of the skin by argyrol and the orbital cellulitis with optic nerve atrophy, which have been reported after syringing the lachrymal passages are serious possibilities. The risk of mechanical injury at the time of treatment seems quite as great with the syringe as with the lachrymal probe.

DR. S. L. ZIEGLER, Philadelphia: I think that these cases of congenital occlusion of the duct are sufficiently rare so that we should place on record any that we may have seen. In twenty years I can recall having treated only two cases. The first was a case of dacryocystitis which occurred between the first and second months. There was no involvement other than the dacryocystitis with mucopurulent discharge. The valve of Hasner was probably closed, thus preventing the passage of tears down into the nose. The case occurred fifteen years ago, and I have had occasion to see the young girl within the past year. She has had no further trouble. My treatment at that time was a single rapid dilatation of the duct, which was practically all the treatment that the child had. The second was a case of atresia with epiphora, in which no remedial measures would bring about a passage of the tears. This case was also promptly relieved by rapid dilatation. The parents bring these children to us for relief,

and if this is not promptly obtained by remedial measures I think that the question of dilatation is quite within the bounds of conservative surgery.

DR. C. J. KIPP, Newark: I wrote on this subject twenty-nine years ago and am surprised to hear the last speaker say he has seen so few cases. I see cases at least once a month. They come as cases of ophthalmia limited to one eye. In all cases treated within the last ten years I have used simply cleansing and pressure and have not had to use a probe in any case. The cases that come with abscess of the lachrymal sac are those that have been probed by other oculists. Cases that come to me within a couple of weeks after birth are cured in a very short time by simple cleansing and pressure. You must instruct the nurse or mother to exert pressure properly to direct the secretions downward. If you do it yourself you can often feel the obstruction give way. I think that the best plan, even for a skilful oculist, is to avoid probing. You can get along without it. Of course, it makes more of an impression on the mother and friends to use the probe, but it is more beneficial to the patient to use the finger.

DR. HIRAM WOODS, Baltimore: I recall four cases that I have followed very closely. One got well without any treatment whatever. It was simply treated on the expectant plan, expressing the secretion and cleansing, and in two months the whole thing disappeared. The other cases were treated by probing under anesthesia. In two cases one single probing effected the cure. In one of the cases a difficulty arose in getting a probe down into the nose. The small No. 2 Bowman passed a short distance, then stopped, and it was impossible, without exerting more pressure than I cared to use, to introduce it further. It occurred to me that the difficulty might be a catarrhal swelling of the mucous membrane. After two weeks of waiting a third attempt took the probe directly into the nasal cavity without effort and the case has remained well now for six months. I think that it is extremely important to realize in the introduction of probes into the infant lachrymal duct that when mucous secretion has persisted there is possibility of a good deal of swelling in the lower end of the duct and rough manipulation may do a good deal of harm.

DR. W. ZENTMAYER, Philadelphia: In my first case the patient had been treated by a local ophthalmologist for catarrhal conjunctivitis. An immediate cure followed the passing of a probe. It was the gratitude of the mother in this case that caused me to pursue the treatment advocated in my paper in subsequent cases. It is very unpleasant for a mother to have an infant with a purulent eye to show her friends and she is grateful for having it cured by a single treatment. Dr. Jackson says that he would treat a member of his own family in the expectant manner. So would I, because I should have the patient under constant observation. In practice this is not possible, and if the treatment is giving no results, the patient is apt to be neglected and serious trouble may supervene. In the Rostock clinic and in the private practice of Professor Peters, but seventeen cases were observed between 1901 and 1908; so that the condition can not be considered a common one. Mayou, whose experience has been large, states that if these cases be seen before an abscess forms one careful passage of a probe is generally sufficient to effect a cure. Dr. Woods' difficulty in passing a probe in his case may have been due to that condition referred to in the fifth division of the etiology, "partial occlusion by pressure of the inferior turbinate bone."

The Ocular Tuberculin Reaction.—E. Waldstein in the *Prag. med. Wchnschr.*, Feb. 27, 1908, xxxiii, 9, warns against the use of the tuberculin ocular test in cases in which disease of the conjunctiva exists. He says that the reaction in such cases is much more severe than in sound eyes and may cause inconvenient results. The cutaneous method of von Pirquet, in which a healthy skin is expressly stipulated, is therefore preferable as it in no way endangers the health of the patient, while the conjunctival reaction often extends beyond the desired limits and sometimes causes permanent lesions.

THE CORRELATION OF CLINICIAN, PATHOLOGIST AND LAYMAN.*

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Medicine has two fundamental objects in view, of equal and vital importance: first, the immediate relief of human suffering and the restoration of the individual to his normal standard of health; second, the protection and maintenance of the members of society in this normal state. The first strictly concerns the clinician, the second the hygienist.

Hygiene, although strictly founded on scientific medical data, nevertheless, so intimately is associated with many intricate sociologic problems that we recognize it as a science distinct and apart from medicine in its more restricted significance.

I wish to center your thought more particularly on clinical medicine or that intimate association between physician and patient in the diagnosis and treatment of disease, as well as to point out the inestimable service rendered both laity and the profession by the pathologist, the clinician's inseparable companion.

Virchow recognized the clinician as the close and confidential agent of the pathologist, as it is he who garners the data from life which the latter is to combine with those of his studies as he forges the chain of our understanding of morbid phenomena. The clinician must guard the truth and accuracy of his findings as carefully as the pathologist does the facts elicited by his work, so that when these combined data are received in the final summing up of the evidence the conclusions to be drawn therefrom shall rest on trustworthy premises.

The one can not be regarded as the superior of the other, for both reciprocally are dependent as they struggle in their respective spheres each to search out and collect the evidence which united deciphers Nature's hieroglyphics.

The clinician is often confronted with an array of symptoms as occult and intricate as the solution of a Chinese puzzle. It becomes his duty to separate the primary from the secondary symptoms, carefully to place each in its proper perspective, and therefrom logically to deduce a true conception of the actual underlying pathologic processes involved, for which he is to advise rational means that are to remove the cause and hence the effect. A comprehensive understanding of the etiology of disease, a vast bedside experience, in conjunction with a thorough knowledge of the fundamental truths of pathology, compose the tripod on which he must stand before attempting to solve the mystery. Even then the task is not always a simple one.

The clinician who is privileged to have his bedside conclusions reviewed by the pathologist is indeed fortunate, for thereby his errors become rectified, and after repeated humiliating disclosures stern necessity compels the cultivation of that spirit of intelligent criticism and conservatism so essential for mastery over the difficult details of medical science.

But he who knows not the blessings of pathologic criticism may go on and on, year after year, committing the same error over and over again because of the lack of this acquaintanceship with the pathologist, who, though occasionally quite discomforting to an oversensitive soul, yet nevertheless remains the clinician's best

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friend. This correlation of clinical medicine and pathology is wisely acknowledged abroad both by the profession and by the laity and acted on accordingly, whereas here in America as yet it receives but scanty recognition.

With these introductory remarks, let us turn our attention to the inductive method of diagnosis, cursorily passing in review the two premises which constitute the basis of our bedside conclusions, the anamnesis and the status præsens. I shall try to point out a few striking instances of the erroneous diagnoses which frequently occur because these premises are too carelessly considered or even negligently disregarded.

The value of an accurately gathered anamnesis is of as much importance to the physician as the shrewd sifting of testimony is to the lawyer. Frequently when the clinical symptoms are too few or misleading we must rely quite implicitly on the anamnesis alone.

It is not easy to obtain a history sufficiently trustworthy to form the major premise on which to rest a diagnosis. Too great caution can not be taken to keep our patients in a calm confidential attitude so that the truth may be elicited without omission or modification from pride, fear, forgetfulness or overstimulated imagination.

Our interrogations should be as simple, clear, logical and few as the necessity of the individual case demands, for confusion in our minds inevitably will be reflected in the minds of our patients. Each statement should be accepted only after the most critical examination. The anamnesis, in some cases, of necessity must extend to the collateral branches of the family to trace the influence of the now universally accepted law of atavism.

Unfortunately, history-taking in some of our hospitals is frequently done in a perfunctory, hurried manner. This branch of the work is usually entrusted to the younger members of the house staff, who are as yet new and inexperienced and often show a sad tendency to slight this rather irksome yet, nevertheless, most important task for the more spectacular scenes of the bedside or operating amphitheater.

It would appear judicious for the profession to appoint a commission, composed of both clinicians and pathologists of long practical experience, to formulate some general plan of history-taking, strictly relevant and compendious, yet sufficiently comprehensive to meet the fullest requirements of medical science, so as to be accepted as a standard by all public hospitals.

The resultants of the work in our various hospitals must be combined into ultimate conclusions which shall represent the standards of medical thought and practice. The starting point for such a combination of forces is the standardizing of all hospital anamneses. The goal will be attained after the laity are educated to the point of placing reason above sentiment and permitting science to complete on the dead body the search for truth begun during life. When such ideal conditions prevail here in America then the statistics and generalizations of scientific medical data from our hospitals will be the more accurate and acceptable because of the vastly increased number of cases recorded under the one and same general plan of work.

Passing now to the status præsens or the physical examination of the patient, we find here a field productive of the widest differences among physicians. Hasty observations, with their ill-drawn conclusions, overconfidence, and, in many instances, common ignorance of pathologic anatomy, owing to the comparatively infrequent autopsies in this country, are among the causes for these differences.

No symptom can be too trivial to be neglected, for often an apparently insignificant symptom far distant from the seat of disease gives the sole clew that leads to a correct diagnosis.

It is a most mortifying as well as a serious error to assign as cause of pain in the knee some simple form of synovitis, and fail to detect an incipient coxitis; or to diagnose a sudden severe lancinating pain in the right hypochondriac region as due to cholelithiasis, and possibly operate for gallstones when simply dealing with a reflex pain caused by an attack of angina pectoris; or hastily to diagnose a daily hectic fever with slight amount of purulent sputum as an ordinary bronchitis, when a careful microscopic examination of the sputum would have disclosed the *Ameba coli* that came from a previous attack of dysentery, which, having caused an abscess of the liver with perihepatitis, finally ruptured into and produced an abscess of the lung; or to associate repeated attacks of epigastric pain and vomiting with simple catarrhal gastritis, when an examination of a twenty-four hour specimen of urine would have shown slight traces of albumin, with hyalin and granular casts, and thus enlightened the physician as to the true meaning of the uremic storm signals set up by an advancing interstitial nephritis.

Clinicians can not exercise too great care in establishing the reality of each concrete fact, whether positive or negative, that forms the basis of their bedside conclusions.

If the boundaries of the heart are asserted to be enlarged, or if a bronchial respiration exists at the base of a lung, or if it is positively affirmed that an empyema, for example, does not exist, or that a urinalysis proves to be negative, there must be no uncertainty of such premises, for thereon depends a conclusion that may be the means of saving or losing a human life.

I was recently confronted at the autopsy by a diagnosis proved to be wholly in error, simple because I did not pay sufficient heed to one of my major premises. On the following symptoms I had ventured a diagnosis of cerebellar tumor: Double choked disc, vertigo, cerebral vomiting, ataxia, increased and irregular respiration and pulse, loss of intelligence, difficult hearing and gradual muscular atony; urinalysis asserted to be negative so far as trace of albumin, casts or kidney epithelium. Signs of edema were absent.

The autopsy proved entire absence of any cerebral tumor. There was a slight cerebral edema, an acute hydrocephalus, and a chronic interstitial nephritis. Thus the symptoms of uremia were mistaken for cerebellar tumor because the evidence of a negative urinalysis was accepted from another, while there is no doubt a painstaking and searching examination would have given positive tests for albumin, casts, and possibly kidney epithelium, and thus at once would have revealed the true significance of the symptomatology.

Another source of error in diagnosis lies in the too hasty association of ideas. In a malarious district not every inhabitant with an enlarged spleen and an occasional fever necessarily has malaria; not every painter that comes complaining of cramps and obdurate coprostasis has chronic lead poisoning; not every cook that consults with reference to a hematemesis has a gastric ulcer.

Thus the knowledge gained by the occasional association of certain trades with certain diseases is directive

but by no means conclusive, and it is precisely in such cases that our analysis of the symptomatology and etiology of any specific case should be the more exhaustive and critical. These are the cases that demand shrewd judgment and draw on our largest resources if we are to give the proper values and deduce rightful conclusions.

The acquirement of the so-called "diagnostic glance" is solely obtained by a long patient schooling in this inductive method of diagnosis. It teaches us to grasp the important factors in any case and from them the lines of investigation that must be pursued and others that may be omitted for the want of time.

An abscess of the lung suddenly developing in the course of previous indefinite cerebral symptoms, as headache, somnolence, spasms, chills, and an irregular temperature, arouses at once a suspicion of lateral sinus suppurative thrombosis; whereas the same set of symptoms arising in a case of bronchiectasis, with the well-known drumstick fingers, a stinking sputum and hectic flush, should demand a thorough examination of the fundus of the eye for choked disc due to cerebral abscess.

Well-marked symptoms of indigestion, icterus, headache and extreme nervousness in a woman at full term would suggest acute yellow atrophy of the liver; but these same symptoms in a young despondent foreign girl of the working classes, instead of being a case of simple catarrhal jaundice, may be a case of phosphorus poisoning induced for the purpose of committing an abortion.

In emergency cases (particularly when coma is present) this well-developed "diagnostic glance" is of incalculable service. Here the physician must comprehend at a glance and act on premises rapidly if not too securely laid.

The work of the master in this respect is no trick of legerdemain, but the result of his thorough unerring knowledge gained through years of training in the inductive method of diagnosis and the fearless verification of those bedside conclusions at the autopsy. But humiliating, indeed, will be the experience of one attempting this rapid snapshot diagnosing who has not had the prerequisite bedside and postmortem training.

The failure thoroughly and systematically to examine our cases by the inductive method often leads to painful disclosures. The discovery of one lesion is no reason to cease searching for others, but on the contrary should be a stimulus for the discovery of complications or other independent primary lesions.

Among my autopsy experiments one pre-eminently illustrates the results of hasty clinical observations. A drunken man, run over by a wagon, had been brought into the hospital. After a hasty examination no lesion of a serious nature was diagnosed. A pleuropneumonia developed and the case was transferred from the surgical to the medical ward. Death intervened and the autopsy, performed by one of Europe's master pathologists, demonstrated a pleuropneumonia in consequence of twelve fractured ribs, six on either side. There was also found a complete fracture of one of the dorsal and one of the lumbar vertebræ, none of which lesions, according to the record, appear to have been diagnosed in life.

Although this represents an extreme case, nevertheless, reviewing my bedside and postmortem experiences, I can recall many instances occurring with painful frequency where eminent clinicians have been accused of the most egregious mistakes simply because pressed for time, the overcrowded conditions of our hospitals prevented each patient from receiving the requisite care and attention his case demanded for a successful scientific issue.

This brings up a present burning question in regard to our hospital services: Why have we not more physicians on our hospital staffs; and why is not better and more scientific work demanded of each, together with quarterly or semi-annual reports accurately summarizing the work done in each department so that the profession generally may become a beneficiary? Not all are privileged to receive hospital appointments, but those denied such positions of power are none the less entitled to the full knowledge derived therefrom, not through the occasional spasmodic efforts of the few, but through regular complete reports stamped with official authority, detailing with equal impartiality and minuteness both the failures and causes thereof, as well as the commendable successes.

Public hospital appointments should be regarded as positions of trust, and the scientific emoluments resulting from such trusteeship as the common property of the entire profession. Only men especially endowed with natural talents, education and executive ability, actuated by a true love of science rather than personal preferment, should be chosen as the profession's trustees to such positions.

Furthermore, as evidence of their right and fitness for such trusteeship original scientific contributions gleaned from their individual fields of labor should be demanded of them by the general profession as its eminent right and privilege.

The satisfactory accomplishment of such scientific work in our overcrowded charity institutions would require a greater number of workers in proportion to the patients so that closer attention to detail might be given. Such an increase of workers, for harmony's sake and better scientific results, naturally would necessitate the abandonment of our present antiquated hospital methods for newer and more centralizing ones. Each ward would require one chief of staff permanently appointed and empowered to apportion the work and to summarize the results therefrom for use by the general profession, instead of each attending physician assuming this rôle. Not every one is fitted to act as administrative head.

The period of service would need extension, particularly in chronic cases and those of perverted metabolism, for often to-day in our public hospitals unfortunate results follow the bi-monthly and tri-monthly changes of our attending physicians, who often differ in matters of diagnosis and treatment, with the result that the patients suffer.

The rarity of autopsies in our country and the lay prejudices against them emboldens clinicians to formulate unwarranted and speculative conclusions and to be content with diagnoses that would not be tolerated if they knew that a thorough autopsy must be held in case of death. Our hasty, superficial methods sometimes lead to results by which the profession must feel humiliated. For example, take this instance, reported in the *New York Sun*, Aug. 17, 1907:

HOSPITAL CENSURED.

CORONER'S JURY SAYS PATIENT DID NOT GET PROPER TREATMENT.

Coroner Harburger and a jury held an inquest yesterday into the death of David Rodesky, the painter who died in the insane asylum on Ward's Island on July 29 from blood poisoning.

Rodesky fell off a surface car and injured his foot. Through neglect the wound became infected. He was sent to Bellevue

Hospital and then to the insane asylum. The jury found this verdict:

"We censure the Manhattan State Hospital and Bellevue Hospital for failure to give the deceased proper treatment while in their care, and recommend that the Manhattan State Hospital increase the number of their attendants and adopt a system of reports to show the exact status of every patient at all times, making it possible for the authorities to ascertain at any time who is in charge of a patient."

Does it not seem wiser for the profession to demand a higher grade of work than to chafe under the slurs and humiliating criticisms of a public too often outraged by the unfortunate results occasionally following the independent hasty observations of the self-overburdened few?

Considering the difficulty of obtaining correct data as to the anamnesis and the status præsens, it is not strange that even experienced physicians occasionally commit serious errors because, through carelessness, overconfidence or lack of time, they pay too little respect to these premises. Nothnagel admitted that he felt himself quite fortunate when he proved to be correct in 60 per cent. of his diagnosis of difficult cases. It should not be forgotten that his every bedside conclusion was recorded and in case of death had to receive the judicial stamp of a rigid autopsy. Under similar conditions it is probable that not many clinicians would improve on this record.

This brings us to the consideration of one of the important topics of this address, namely, the value to both laity and profession of diagnosis when reviewed by the autopsy.

Suppose under the influence of a strong public sentiment it was the prevailing custom for each case of death to be examined as to the cause thereof. What must be the ultimate and inevitable effect of such a practice? Would it not quickly expose the charlatan with his obnoxious nostrums and offensive advertising, lay bare the false claims of the numerous pseudo scientific delusions under which yearly many lives ruthelessly are sacrificed, and weed out the unfitted by natural selection under the operation of that most inexorable of all laws?[1]

Such a custom should be in force to-day, at least with respect to all patients dying in our charity institutions. In private practice public sentiment should be educated to the point of demanding an autopsy at least in all cases that defy an explanation free from speculation. In such cases the necessity of an autopsy is a positive duty, for the living are entitled to those secrets of the dead which alone can elucidate morbid phenomena. This is the sole invaluable service the dead can render the living. The laity becomes the great beneficiary of the raising of the professional standard which would result.

Pathologic anatomy is the force to-day disturbing the contentment and dry-rot in medicine engendered under the former régime of empiricism. It teaches us the abundant recuperative resources of Nature, thereby more and more emphasizing our own limitations and demonstrating the truth that all our therapeutics should be simplified and founded on more rational scientific bases, and employed only to assist Nature in overcoming insurmountable obstacles. This is neither hopeless therapeutic nihilism nor *do nothing* irresponsible fatalism, but rather the advocacy of a still closer study of the inimical forces about us and a more singular purpose in employing those of our protective agencies tried and not found wanting. Science to-day with its ever-increasing exactness demands that the intelligent use of any drug shall be the same as the skilful conservative use of the scalpel.

1. Darwin: Law of the Survival of the Fittest.

Pathologic anatomy is no respecter of persons, "pathies" or "isms," but an impartial moderator in all scientific controversies over somatology. It is pathologic anatomy that teaches us the transcendentalism and futility of high potencies; that curbs the reckless extravagant use of the prescription blank; that disillusionizes those misguided mental therapeutists who attempt cures in defiance of natural law and order. In a word, it is pathologic anatomy that levels the barriers that divide into schisms what should be one great united fraternity, and compels all schools, standing shoulder to shoulder on a common basis, to recognize that the science of medicine is subject to that one great universal law which controls all other phenomena in the natural world—the law of cause and effect.

If we are to remain in darkness, cloaking our mistakes with the mantle of vain assumption, as we frequently do to-day in the absence of a verifying autopsy, then let the present deplorable indifference continue. But if we would seek the light, surrendering self to science by thinking harder, speaking less frequently, but fearlessly and willingly facing our conclusions when spoken, thus having a little less of the personal factor in our work and a little more earnest searching for the hidden truths of medicine; if we would advance and maintain our noble profession in a position commanding the high respect and sincere veneration it should, but unfortunately often does not, receive to-day, as evidenced by the numerous pseudo-scientific "isms" fluorishing among us; if we would protect both the laity and ourselves from our ever-recurring mistakes—thus silencing the criticisms and aspersions too often deserved, that our faith-curists and other enemies cast on us—then, harmoniously working together, clinician, pathologist and layman, let us welcome the invaluable knowledge to be gleaned solely from the respectful scientific autopsy of our reverenced dead.

214 West Seventieth St.

TYPHOID FEVER.

A SUMMARY OF 148 CASES WITH REFERENCE TO THE EFFICACY OF THERAPEUTIC FASTING.

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Autointoxication and inanition are the Scylla and Charybdis of a typhoid patient, and the physician who can pilot the charge through the narrow channel of safety, should be accorded a high degree of therapeutic skill.

For the treatment of typhoid fever a specific remedy has not been discovered, and the consensus of opinion is that medicines have but little more than a contributory effect in the management of this disease. So the drug treatment may be eliminated altogether from this discussion.

The process of using bacterial vaccines for hastening the process of immunization by increasing the phagocytic property of the blood, thus raising the opsonic index, a process which also takes place in a normal case of typhoid fever, is rational and scientific and deserves a more extended application. In other words, the processes of Nature are expedited by this method.

* This paper, read at the Fifty-ninth annual session of the Medical Association of Georgia, Fitzgerald, April 15, 1908, is a continuation of some studies, a report on which was read at the New Orleans session of the American Medical Association, and published in THE JOURNAL, July 11, 1903.

At present it is universally agreed that the food factor in the management of a typhoid patient is the most important practical question to be solved. In this day of progressive medicine there is a tendency to wander away from convictions that have been evolved from years of bedside study. It is reasonable to suppose that the newer methods of research would reveal certain fallacies that have resulted from clinical observations, but it is unreasonable to admit that old clinical conclusions could be displaced by bedside studies of the present day, for it is doubtful that clinical observers of recent years are in any way superior to our medical forefathers.

Bacteriologic investigations have not caused us to discard many of the old clinical methods of management of typhoid fever, but, on the other hand, have enabled us to confirm and perfect the technic of treatment given by our predecessors. It is safe to say that the lowered mortality rates are now more due to that factor than to any other cause, excepting possibly the serum treatment. Of course there has been great advance in prophylaxis.

Our apology for offering these observations is that the heavy mortalities from the accepted form of treatment of typhoid fever are unwarrantably high. One of the best known surgeons in America a few years ago made the statement publicly that in one year a number of his family connection had died from typhoid fever, and had had the best medical service available; and further said that if he were to contract the disease he would prefer that some intelligent country physician should manage the case. Such comments are not uncommon.

As this summary is offered from the standpoint of a clinician, it is well to refer to certain clinical facts relating to this disease.

Typhoid fever is a disease of early adult life, the average age in this series of cases being 21 years. Extremes of age show less susceptibility, as do also the anemic.

Robust individuals seem to be more susceptible and furnish the more violent types of the disease, which is probably due to a peculiar susceptibility and to the fact that more infection is consumed. Of the total number there was 27 per cent. of cases classed severe between the ages of 20 and 30 years, while the percentage of severe cases among others was 12.4. There was a greater amount of toxemia associated with those exhibiting gastrointestinal symptoms, showing a direct relation between the extent of pathognomonic lesions and the constitutional symptoms. Of the fifty-seven severe cases, forty-five, or 78.7 per cent., gave marked gastrointestinal symptoms, while in the mild cases the percentage was 15. We have similar conditions in diphtheria, in which the extent of pathognomonic lesions, as a rule, bears a direct relation to the systemic disturbance. The toxin of the *Bacillus typhosus* is liberated by the disintegration of the organism, and takes place more rapidly in the human organism than in culture media.[1] The bacilli found in the feces represent those that have escaped absorption, and are probably a small percentage of those existing in the digestive tract. "In typhoid fever the bacillus first found its way from the alimentary tract to the lymphopoietic system, including the spleen, where it developed chiefly, and from it invaded the blood stream. They thought it doubtful if the bacillus multiplied in the blood, but believed that its presence there represented simply an overflow from the lymph organs."[2] So we would conclude that the battle-ground of treatment lies in the vicinity of the small intestines.

More characteristic symptoms are displayed in diarrheic cases, while the opposite is true of the constipated cases. A contrast of symptoms may be noted in the second week, where watery diarrhea exists, and a week later, when the bowels become constipated; yet the patient has been taking the same food and running the same temperature, while the symptom-complex has markedly changed. The excessive activity of purgatives is evidence of contraindication to this class of remedies, and as diarrheic cases tend to constipation, temperatures become lowered and, as a rule, general improvement follows.

Emaciation occurs independently of the amount of food taken into the stomach,[3] and this suggests the fact that but little food is assimilated, while the remainder furnishes a culture medium for the *B. typhosus* and other bacilli, thus giving rise to a mixed infection, resulting in a greater degree of toxemia. While the specific typhoid toxin is associated with high temperatures, it is not a constant accompaniment, as a patient may improve under a higher temperature. Tympanites and diarrhea are distressing complications, and under these circumstances it is almost criminal to give more than minimum quantities of the blandest forms of nourishment, for the absorption of food is almost *nil*. Because of an increased area there is increase of the absorption of toxins, while there is a transudation of fluids out of proportion to the intake of liquids, and whatever food is given under these circumstances usually excites peristalsis in the effort to eliminate the surplus. We know that under normal conditions peristalsis is essential to absorption, and in this abnormal condition it is reasonable to believe that peristalsis still increases absorption of toxic substances, and clinical observation warrants this conclusion. Feces usually consist principally of excretions from the intestinal walls.[4] Where there is toxic paralysis of this function the process of elimination and absorption is disturbed by any food residue, and one of the first signs of improvement in a case of typhoid fever is the appearance of feces in the dejecta. The use of purgatives will not force the presence of bile and feces, but aggravate a condition already established by the disease. It is frequently noticeable that a purgative or enema temporarily raises the temperature, which was not directly dependent on constipation, and this fact is not to be noted in any other acute gastroenteric disorder.

Ambulatory cases are not, as a rule, any less prone to intestinal complications than others, for obvious reasons. In fact, the diagnosis of typhoid fever is frequently made only after the occurrence of a fatal hemorrhage or perforation. Hemorrhage in an unsuspected case of typhoid fever often initiates a typical course of the disease because of the establishment of conditions favorable for the increase of intestinal symbiosis. Septic products from the decomposition of blood in the intestinal canal probably constitute a greater danger than the immediate loss of blood entails.

Of the seven fatal cases, four occurred in those primarily classed mild, and in one a fatal hemorrhage revealed the diagnosis. A late diagnosis is often responsible for the untoward course of a typhoid case.

1. Editorial, THE JOURNAL A. M. A., August, 1903.

2. Coleman and Buxton: Bacteriology of the Blood in Typhoid Fever, Med. Rec., March 30, 1907.
3. Lewis: Med. Rec., Aug. 2, 1902.
4. Lusk: Science of Nutrition, p. 48.

The younger the patient, the milder the course of the disease. There were but three of the fifty-seven severe cases in patients under 10.

If the onset is sudden and severe, the duration will be shorter. The degree of pyrexia is not necessarily an index of gravity.

Pulse frequency, barring individual peculiarities, is an index of danger.

Delirium, when due to hyperpyrexia, has not as bad a significance as that occurring with a low temperature. Abortive cases show a greater tendency to relapse than others, probably because the organism has not had time to produce a sufficient amount of its own antitoxin. There were five relapses, or 3.3 per cent. of the total number of cases, and all were associated with some unusual gastrointestinal disturbances. This percentage is far below the average. The variety of types of this disease is more due to individual conditions than to variation in types of epidemics. There may be only one severe case in the family with others.

The first discernible sign of improvement is a notable increase of urine.

Clinical diagnoses were principally relied on in these cases. Cabot concludes[5] from extensive postmortem examinations that 97 per cent. of all cases of continued fever in the New England states lasting two weeks or more proved to be typhoid, tuberculosis or sepsis. From an investigation by Dr. H. F. Harris[6] of forty-five cases of "slow fever" in southern Georgia the typhoid bacillus was isolated in 51.1 per cent., the paratyphoid bacillus in 20 per cent. and a mixed infection in 2.29 per cent. of cases. The commission appointed to investigate the outbreak of typhoid fever during the Spanish-American war recognized the existence of continued fevers as belonging to the malarial and typhoid classes only. The Widal reaction is only confirmatory. So we would conclude from the available scientific data that clinical diagnoses can be made with a reasonable degree of accuracy. It is very necessary to make a diagnosis during the first week of typhoid fever, for the subsequent course is materially influenced by the management of the disease during this period of time. Every case of continued fever lasting a week or more without obvious cause should be assumed to be typhoid fever.

In those liberally fed a great majority of deaths from typhoid fever result, directly or indirectly, from gastrointestinal complications, and this would lead us to regard the dietetic management one most important part of treatment. As in all diseases for which there is no specific remedy, the aim should be to treat the patient and not the disease, for the patient in some cases of typhoid fever will recover under an abusive form of treatment, while in others the small thread of vitality can be conserved only by a precision of the most delicate management. In any case, however mild, the aspect of the disease may become suddenly changed by some intestinal complication. This leads us to the consideration of the food question.

The great desideratum is to nourish the patient without increasing saprophytosis. It would appear that a patient having vomiting and diarrhea would do better without food altogether for a time, while food could be taken *ad libitum* in another case without such disturbances. While a majority of the latter class would do well, a certain number would be changed to the former class. In a twenty years' experience I have not acquired a therapeutic skill that enables me to say which case will do well on a free diet. Previous to this series, which covers a period of twelve years, we have treated a number of cases on a liberal diet, with painful mortalities, so we must adopt a course that has fewer hazards. A small percentage of these cases were given liberal feeding where conditions were exceptional. It is a question of saving the greater number, for a small percentage of mortality is inevitable. When we can discover a preventable cause that produces death we should endeavor to apply the knowledge in subsequent cases. In fact, the majority of deaths are theoretically preventable. Of the seven deaths, four could have been prevented.

The proper food management will well-nigh shield a case of typhoid fever from the usual dangers incident to the disease. "Clinical typhoid is really in many instances a comparatively mild original infection, plus a fatal intestinal toxemia due to saprophytosis, plus inanition,"[7] and it is our belief that more patients die from saprophytosis than from typhoid infection. "Typhoid fever, especially in the later stages, was largely autointoxication."[8] It is absurd to try to maintain any standard that approaches a normal nitrogen metabolism in an acute infectious disease having gastrointestinal lesions, for the patient's life does not depend on it. A patient weighing 120 pounds requires 1,925 calories a day in health. In infectious diseases there is an increased waste of nitrogen, but it is advisable to give as much food as possible without increasing the amount of autointoxication. Fats and carbohydrates in excess do not prevent tissue waste, which is the inevitable consequence of the disease, regardless of the proteid content of the food.[9] That being true, a surplus of food would cause hyperpyrexia. So it is incumbent on the physician to keep his patient alive, by avoiding the dangerous effect of overfeeding, until individual immunity is established. Milk may be a digestible, or it may be the worst food. My inability to decide what cases are suitable to its use has led me to discard it altogether, for nothing is so disastrous to an intestinal ulcer as a milk curd. Mandel[10] has observed that in milk-fed fever patients the temperature rises or falls with the quantity of purin bases eliminated, and Lusk suggests the possibility that medicinal antipyretics nullify the activity of purin bases on the nerve centers because these remedies do not lower the temperature under normal conditions. The clinical observation has been recorded that milk is inadmissible in any form of hyperpyrexia, more especially that arising from gastrointestinal disturbances. It has been our observation that milk as food will not accomplish in the South what it is said to do in New England in the treatment of gastroenteric disorders. It is doubtful if the average man in health could digest the classical two quarts of milk a day when abruptly placed on that diet alone. It may be diluted, however, to obviate the danger of curd formation.

Therapeutic fasting—not starving, an incorrect term frequently used—serves an admirable purpose in allowing a typhoid case to pursue a more nearly normal course, for fasting is effectual by reducing the bacterial content of the alimentary tract, thus becoming a negative intestinal antiseptic. By such means we establish conditions more favorable for feeding. As the more

5. Tr. New Hampshire Med. Soc., 1907.
6. THE JOURNAL A. M. A., Aug. 3, 1907, p. 407.
7. Benedict: THE JOURNAL A. M. A., Nov. 17, 1906.
8. Ewing: Med. Rec., March 30, 1907.
9. Lusk: Science of Nutrition, pp. 264-265.
10. Am. Jour. Physiol., 1904, x, p. 452.

violent types are seen in sthenic cases, this class furnishes the more favorable subjects for fasting, which is the only remedy we have for reducing a case more nearly to a normal typhoid infection. Fasting before abdominal operations is effective by reducing the number of intestinal bacteria. Kelly[11] advises fasting for the same reason in plastic operations of the intestines. "Cusing and Lovingood examined twenty-seven dogs and eight rabbits. They found that the duodenum, jejunum and upper part of the ileum were nearly always sterile after a fast. . . . Where patients have been subjected to preparations for an operation, the usual period of fasting has a marked tendency to reduce the bacterial content about the ileocecal valve."[12] Emaciation may not be any more marked in patients that have fasted than in others. Frequently the reverse happens, for nutrition is cell activity, and typhoid fever is not more fatal when accompanied by emaciation, for cell activity in sthenic cases may be paralyzed by toxins. In convalescence, gain in weight may be obtained on the same quantity of food, because cell activity seems to be stimulated by Nature's antitoxin. Metabolism is a function of the cell and is increased by autointoxication.

The pathologic nature of tuberculosis and typhoid fever are very similar. The conclusion is established that the mixed infection, and not the tubercle bacillus alone, produces the hectic fevers, sweats, etc., which exhaust a tubercular patient. The tubercle bacillus plays only an initial part in the morbid process. In typhoid fever the initial lesion is caused by the *B. typhosus,* which opens up an area for the multiplication of other micro-organisms and absorption of their toxins. One truth clearly established in the successful treatment of pulmonary tuberculosis is the necessity for the enforcement of absolute rest of the respiratory organs as far as possible. Reasoning by analogy, we should endeavor to give as much rest as possible to the intestines in typhoid fever, and clinical evidences bear out this assumption. If pathognomonic lesions were away from the alimentary tract, forced feeding would be rational. In the treatment of typhoid fever we may apply with benefit Ochsner's rationale in the management of cases of acute appendicitis, his aim being to keep intestines in a passive state by fasting, thus reducing bacterial symbiosis, and by insisting on absolute bodily rest. In these two diseases increase of peristalsis is a means of distributing infection—in one disease, inside, and in the other, outside the intestines. The two conditions are essentially surgical.

Hence the conclusion was reached that in typhoid fever, and other infectious diseases, an important part of the morbid process consisted in a disturbance of nitrogen metabolism which was very similar to that seen in pure autointoxication, and which, therefore, was not directly connected with the toxins of the invading bacteria. The excessive nitrogenous metabolism in typhoid fever was not the specific effect of the action of the endotoxins of the typhoid bacilli, but represented hyperactivity of a normal type, associated with fever. Wolf had pointed out that bacterial endotoxins were much alike in their actions, and affected chiefly the nervous system.[13]

The pathologic anatomy of typhoid fever shows a condition of gastrointestinal catarrh with hyperplasia, with a great reduction of all the digestive fluids. Saliva is diminished or absent, and hydrochloric acid is usually absent in the gastric juice, and, in fact, almost every condition unfavorable to digestion exists. Diarrhea is an effort of Nature to throw off what the intestines can not assimilate. Intestinal ulcers should be assumed to exist in every case, however mild, and the proper treatment of ulcers is rest.

The rational treatment of such a condition is a restricted diet, or fasting; then peristalsis can be better controlled by cold applications, and an opiate may be used if much diarrhea exists.

It has been our observation that the use of opium retards tissue waste during a fast, and in these cases it was prescribed when any indication arose, especially insomnia. Prof. Lafayete B. Mendel, professor of physiologic Chemistry in the Sheffield Scientific School, in a personal communication, says:

The few available experiments on man regarding the influence of morphin on metabolism indicate no change in the respiratory exchange when therapeutic doses are given. The studies on animals have indicated a slight decrease in nitrogenous metabolism with small doses, and an increase with distinctly larger doses in starvation. It seems probable, from the small amount of experimental evidence available at present, that the doses used for your patients would exert no marked effect on their nitrogenous exchanges.

Drugs may influence the course of metabolism, iodothyrin increasing it and morphin profoundly diminishing it.[14]

Death from starvation occurs ordinarily in eight days after the withdrawal of all food and water. The same result occurs, even though dry food is allowed, but life is prolonged forty days when water is freely given.

In sthenic cases fasting should be applied from one to three days until the active symptoms are controlled. Gentzen proved by experiment that fasting does not arrest the secretion of hydrochloric acid.[15] The reduction of the degree of toxemia is hardly noticeable the first day, but is shown by a reduction of one or two degrees of temperature on the second day, and on the third day more than that: but it is exceptionally advisable to continue fasting through the third day, as the severe symptoms are usually ameliorated. In other than sthenic cases, that is, in pregnancy, the puerperium, the tubercular diathesis, the anemic, senile cases, etc., fasting should not be applied, but in these cases there is rarely a necessity for its use. On the advent of pneumonia the patient should have more liberal feeding, because of increased demands for food. An argument obtains that fasting and a restricted diet enhance the effects of hydrotherapy, the technic of which will be referred to later. Full feeding in many cases results in the necessity of packing the patient in ice to control fever. Those violent toxic cases show marked improvement after a twenty-four hour fast, which allows the organism to unload the excessive amount of toxemia.

Many cases run an abortive course after the amphibolic period under a treatment by fasting and a restricted diet. After fasting twenty-four to forty-eight hours, a very restricted diet should be given, consisting of broths of beef, chicken, mutton, oysters, etc., coffee, cocoa, egg albumin, peptonoids, gelatin, etc., in prescribed amounts.

The effect of these slops should be carefully watched, and definite quantities should be ordered in severe cases. It is needless to say that they can be taken *ad libitum* in mild cases. The popular custom of water-logging the

11. Tr. South. Surg. and Gynec. Assn., 1905.
12. Houghton: Med. Rec., Dec. 30, 1905.
13. Ewing: Nitrogenous Metabolism in Typhoid Fever, Med. Rec., March 20, 1907.
14. Lusk: Science of Nutrition, p. 289.
15. Deutsch. med. Wchnschr., Aug. 22, 1907.

system is to be deprecated, and if the patient is rational his inclination would be a reliable guide. Lusk says that the ingestion of quantities of water causes a true increase of proteid metabolism.

Gelatin is a valuable adjuvant in the dietary of a typhoid patient. It serves three purposes: it adds to the relish of the various liquids, lessens the nitrogenous waste from the system and prevents hemorrhage. A teaspoonful three or four times a day is the amount usually ordered and should be dissolved in a little hot water and then added to any liquid nourishment, meat broths, cocoa, coffee, tea., etc., or else flavored with wine or lemon and served with whipped cream. It adds richness of taste to these slops, which otherwise become tiresome to the patient. An agreeable sherbet may be made by combining gelatin with white of eggs with 20 per cent. of cream and sweetened and flavored to taste. The food value of gelatin, which, being in a concentrated form, serves an excellent purpose, is recognized.

Prof. Lafayette B. Mendel writes me in this connection: "Gelatin plays the same rôle as the carbohydrates in sparing tissue waste," and cites a conclusion by Dr. J. R. Murlin:[16]

> The power of the organism to utilize gelatin as a substitute for proteid in maintaining nitrogen equilibrium depends to some extent on the proteid condition of the body at the time of the experiment. The lower the proteid condition becomes, the more strongly does the organism lay claim to gelatin as a means of protecting its living substance. Herein appears a biologic adaptation of no small importance.

Gelatin spares proteid in metabolism.[17]

When used emaciation is less rapid. The hemostatic effect of gelatin is universally recognized, but to wait until an intestinal hemorrhage has occurred but little immediate good can be hoped for by its use. It should be used as a routine in all cases to prevent hemorrhage. Very aggravated diarrheic cases do not tolerate it so well, as it may increase tympany. But in these cases it may be used on alternate days in small quantities. In the last seventy-three cases in which routine gelatin feeding was given no case of hemorrhage occurred after having been under treatment two days.

The case should be closely studied. Any surplus of food will be indicated by a rise of temperature, for to nourish the patient without overcharging the digestive capacity requires a very close study. Milk should be absolutely forbidden, because no one can predict when it will form a curd, which is worse that solid food. One of my patients had a hemorrhage in convalescence from taking milk and lime water in equal parts. I examined curds the size of a hazelnut in the bloody dejecta. The case was a mild one.

Another patient was seen in consultation, with symptoms of perforation, twenty-four hours after drinking two glasses of buttermilk at an interval of half an hour. He died three days later from peritonitis. This case was a mild one.

Milk is valuable, however, diluted with two to five parts of coffee, cocoa, broths, hot water, as under these circumstances the danger of curd formation is slight, unless contradicted by diarrhea and tympany.

This plan of dietetic treatment should be continued until active symptoms are controlled, and as improvement advances nourishment may be more liberally given. Solid food is a danger that offers few advantages to the patient. Nearly all recrudescences are due to dietetic errors. Fasting in late stages and convalescent stages will cause fever, as inanition often causes fever. The subsequent history of patients subjected to fasting has been in no way different from that of those more liberally fed.

As before suggested, fasting and a restricted diet greatly enhance the effect of hydrotherapy. Where there is fermentation in the alimentary canal with hyperpyrexia it is easy to understand how difficult it is to reduce the temperature by baths, but under other conditions the modified bath is effective, whether cold, tepid or hot.

I have often observed a reduction of more than two degrees of temperature after a single sponge bath in sthenic cases after fasting.

To illustrate: The patient in Case 94 fasted the first day and was then allowed a very restricted diet. There were given thirteen cold sponge baths, lasting from twenty to thirty minutes. The greatest reduction of temperature was 2.4 degrees, while the lowest was 0.8

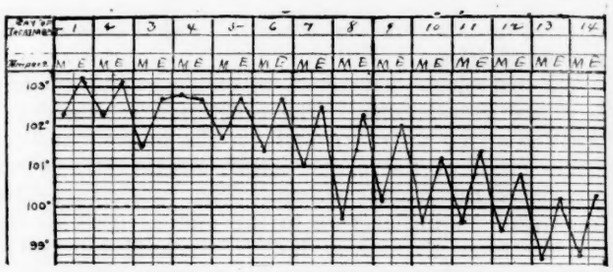

Chart 1.—A composite temperature chart of ten cases of typhoid fever.

TABLE 1.

Averages of 10 cases of uncomplicated typhoid fever under treatment by a restricted diet and fasting. These cases are taken at random from those lasting 14 days or more and do not include abortive cases.

Case No.	Sex.	Age.	Severe.	Gastrointestinal symptoms.	Nervous symptoms.	Duration, days.	Mortality.
72.....	F.	17	+	+	—	33	..
80.....	F.	14	+	+	—	14	..
81.....	M.	20	—	—	—	15	..
82.....	F.	18	+	+	—	20	..
88.....	M.	5	+	+	+	14	..
93.....	M.	25	+	+	—	15	..
94.....	M.	24	+	+	—	21	..
95.....	M.	23	—	—	—	16	..
96.....	F.	26	+	+	+	30	..
98.....	M.	26	—	—	—	14	..
Average		19.8	70. %	70. %	20. %	19.2	0 %
Average of entire series of 148 cases.....		21.	38.5%	39.9%	16.2%	17.4	4.7%

of a degree, and the average 1.8 degree per bath. We would not expect to find such results under other circumstances. Constipation should be relieved on alternate days by a soapsuds enema.

There are many minor details in the treatment of certain symptoms and complications that need no mention and are familiar to every clinical observer.

I append a chart of an abortive case (Case 108) in which the diagnosis was confirmed on the eleventh day by the Widal reaction. On the third day there was active delirium, with unconsciousness and diarrhea with tympanites. The notes on the chart need no comment.

In this report cases lasting twelve days or less were classed as abortive, and there were forty-nine cases, or 33.1 per cent. of this type, which is a greater proportion than ordinarily expected.

Abortive cases show a greater tendency to relapse,

16. Am. Jour. Physiol., 1907, xlx, 285.
17. Lusk: Science of Nutrition, p. 102.

and require to be kept in bed on a restricted diet at least ten days after a normal evening temperature.

Of the total number, 144 were white and 4 black. Patients under 10 years, 23; between 10 and 20 years, 43; between 20 and 30 years, 54; and over 30 years, 28. There were 80 males and 68 females. The average duration of these cases was 17.4 days, that is, up to the time when the evening temperature became normal. Gastrointestinal disturbances were noticeable in 59 and absent in 89 cases. Nervous symptoms were marked in 24 cases and absent in 124 cases. Eleven cases, or 7.4 per cent., were complicated. Five patients, or 3.3 per cent., had hemorrhages, four of which were slight and one immediately fatal from coming out of bed during delirium. It may be remarked that two of these had hemorrhage before coming under treatment. Two patients had two attacks within twelve months. Pneumonia occurred as a complication in three cases; one

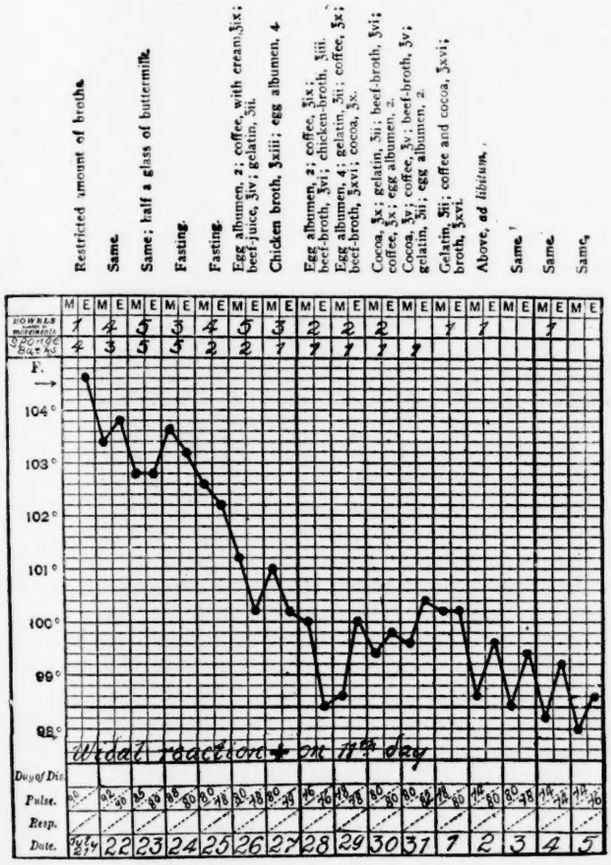
Restricted amount of broths
Same.
Same; half a glass of buttermilk.
Fasting.
Fasting.
Egg albumen, 2; coffee, with cream, 3ix; beef-juice, 3iv; gelatin, 3ii.
Chicken broth, 3xiii; egg albumen, 4
Egg albumen, 2; coffee, 3ix; beef-broth, 3vi; chicken-broth, 3iii.
Egg albumen, 4; gelatin, 3ii; coffee, 3x; beef-broth, 3xvi; cocoa, 3x.
Cocoa, 3x; gelatin, 3ii; beef-broth, 3vi; coffee, 3x; egg albumen, 2.
Cocoa, 3v; coffee, 3v; beef-broth, 3v; gelatin, 3ii; egg albumen, 2.
Gelatin, 3ii; coffee and cocoa, 3xvi; broth, 3xvi.
Above, ad libitum.
Same.
Same.
Same.
M E M E M E M E M E M E M E M E M E M E M E M E M E M E M E
Widal reaction + on 11th day
Days of Dis.
Pulse.
Resp.
Date.

Chart 2.—Chart of an aborted case of typhoid fever; the record begins on the second day of the disease and ends on the seventeenth day.

had osteomyelitis, one hematuria, and one showed mental imbecility during convalescence, but recovered promptly. One case showed hyperpyrexia, the temperature reaching 106.7 F. and during the following week remaining subnormal. No case of perforation or thrombosis was diagnosed. Two patients had double parotitis and recovered. In one the parotid glands sloughed out *en masse*. The treatment adopted in the other case deserves some notice. A man 30 years old developed double parotitis in the third week, with symptoms of profound sepsis and collateral edema quite closing the eyes. Under chloroform anesthesia the glands were incised and a grooved director was passed in six or seven different directions through the edematous tissue of the gland to the depth of an inch or more. Symptoms of sepsis were ameliorated and swelling rapidly subsided without suppuration. Two weeks later orchitis developed. Three years previous he had had mumps, followed by orchitis. Among the seven deaths patient 46, a negro, died from urinary retention and neglect. Patient 57 died from hemorrhage in a few hours from getting out of bed, not having a nurse. Patient 70 died on the tenth day after convalescence, from pneumonia. There were no evidences of typhoid reinfection. Patient 64, a negro, alcoholic, died on the twelfth day, from asthenia. Death in Case 118 resulted from osteomyelitis after a month's duration. Patient 120, an ambulatory type, before coming under treatment, had hemorrhage, which determined a fatal issue. Patient 124, the wife of this man, being depressed with grief, died a month later, complicated with pneumonia. Of the 144 whites there occurred five deaths, or 3.4 per cent.

CONCLUSIONS.

1. The food factor in the treatment of typhoid fever is the most important practical question to be solved.

2. Toxemia is more marked in cases having gastrointestinal disturbances.

3. Clinical evidences warrant liberal feeding only in a few cases.

4. The chief source of development of the *B. typhosus* is found in the intestinal canal and the lympho-poietic system.

5. The aim should be to nourish the patient without increasing saprophytosis, and the battleground of treatment lies in the gastrointestinal tract.

6. A greater danger exists from a toxic paralysis of nutritive activity of the cell than from inanition.

7. Any vital organs containing pathognomonic lesion of an infectious disease demand absolute rest.

8. The excessive nitrogenous waste in typhoid fever is not due to the endotoxins of the typhoid bacillus but probably mixed infections, and the specific typhoid toxin is not necessarily accompanied by high temperatures.

9. Emaciation occurs independently of the amount of food taken and results more rapidly from toxemia than from any lack of nourishment.

10. The patient's life does depend on attempting to maintain a normal nitrogen metabolism.

11. The proper food management will shield a patient from the usual dangers of typhoid fever.

12. Sthenic cases furnish the more dangerous types of the disease, and these are more amenable to therapeutic fasting.

13. Ambulatory cases are not less prone to intestinal complications than others.

14. A greater danger arises from septic conditions set up by a hemorrhage than the mere loss of blood entails.

15. Symptoms are no guides as to the presence of intestinal lesions, consequently patients require more or less routine feeding.

16. Abortive cases show a greater tendency to relapse.

17. Tympanites furnishes an increased area for absorption, and is provoked by any surplus of food, which increases peristalsis.

18. The great desideratum is to treat the patient and not the disease.

19. Scientific data prove that clinical diagnoses may be made with a reasonable degree of accuracy.

20. Therapeutic fasting allows an uncomplicated typhoid infection to pursue a normally mild course without any mixed infection, by reducing the bacterial content of the intestines. This was applied only to the severe cases.

21. Fasting will enhance the effect of hydrotherapy, and frequently render the use of antipyretic measures unnecessary.

22. Gelatin is a valuable food in that it lessens the nitrogenous waste and prevents hemorrhage.

23. The low mortality in this series of cases was greatly due to the elimination of relapses and complications among the mild or abortive cases by restricted feeding and lessening the dangers in sthenic patients by fasting.

24. In this report forty-five consecutive cases occurred without a death. Of the 144 whites, five, or 3.4 per cent., died, and the low mortality, 4.7 per cent., of all cases was ascribed to the dietetic management, though many of the cases had very inefficient nursing.

MIGRAINE, AN OCCUPATION NEUROSIS.*

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It is not claimed that this paper will present a complete explanation of migraine; it is hoped, however, that it will start a suggestive line of thought bearing on a pathogeny which can be at the best only hypothetical.

The form of migraine to which I shall confine myself is the every-day type, the variety which I have found occurring in complete form in 17 per cent. of healthy young adults, and in incomplete form in many more. It reaches its greatest intensity in early life and generally disappears after middle life. It is often preceded by scotomata, by temporary aphasia and numbness, loss of memory, signs of mental incapacity and confusion, and even possibly, as Gowers suggests, by the peculiar feeling that the present is a reproduction of the past, the feeling thus described by Coleridge:

> Oft o'er my brain does that strong fancy roll
> Which makes the present (while the flash doth last)
> Seem a mere semblance of some unknown past,
> Mixed with such feelings as perplex the soul
> Self questioned in her sleep.

Any of these symptoms may appear without the pain in the head. Loss of consciousness never occurs, a fact which sharply distinguishes migraine from epilepsy, though there have been attempts to make them analogous. The frontal and temporal regions are most often involved, the occipital next often, the vertex practically never alone.

At the time of greatest intensity the pain is sometimes accompanied by nausea and vomiting, especially in early life, whence the term "sick headache." The time varies in duration from several hours to a day or more. It does not often materially interfere with sleep, though it frequently appears on awakening in the morning. It does not necessarily accompany extreme use of the eyes, though it is apt to appear after such use, as on the morning following a theater party.

The so-called ophthalmoplegic form of migraine is so rare in comparison with this form, and so distinct in its symptoms, that it seems hardly fair to discuss both types together. The suggestion of Plavec,[1] that the ordinary form is the precursor of the ophthalmoplegic form, seems to have little basis, and his proposed pathology (periodic swelling of the hypophysis) as concerns the ordinary migraine, is purely speculative.

A case reported some years ago by Dr. Cheney and myself has a practical bearing on this question. A man of middle age had suffered many years from what was supposed to be the common type of migraine, though it was accompanied by the unusual symptom of persistent homonomous hemianopsia. The headaches became more severe, various paralyses appeared, mental deterioration ensued, and death followed. The autopsy revealed pituitary tumor.

While this case bears favorably on Plavec's location for ophthalmoplegic migraine, it is far from aiding us in the pathogeny of ordinary migraine. Nor does it suggest that ordinary migraine was the precursor of the more serious trouble. The migrainous headaches in this case should rather be regarded as symptomatic of the local lesion, no more allied to or resulting from ordinary migraine than epileptoid seizures from cerebral tumor are allied to, or result from, idiopathic epilepsy, though they may be mistaken for it at the outset.

Whatever theory is advanced for the pathogeny of ordinary migraine, the use of the eyes can hardly be left out.[2] The arguments connecting the use of the eyes and migraine are easily preponderant. In the first place too many cases of migraine have been relieved, in part or entirely, by correction of refractive error, particularly of astigmatism, to be explained by coincidence. In the second place, attacks have been frequently aborted by the mere straightening of glasses, as I have many times verified in my own case. In the third place, migraine has lessened and disappeared in innumerable cases after accommodative paralysis has appeared. Finally, study of the blind shows that the greater the blindness the less the migraine. My own examination of a long series convinced me that migrainous headaches are only half as frequent among the blind as among individuals of corresponding age and under like conditions.[3]

It may be objected that migrainous headaches are not quite unknown among the blind. But it must be remembered that it is a common practice for the blind, as for others, to adjust their accommodation to the distance of their work as judged, even in the absence of sight, by the position of the hands.

Assuming, then, that disturbance of the accommodative centers plays a part in migraine, it need not be expected that the blind shall be quite exempt.

Another peculiarity of eyestrain which has an important bearing on my proposition is the almost continuous frown of the astigmatic. This frown involves principally the corrugator supercilii and the anterior part of the occipitofrontalis, which muscles occupy the regions in which the pain most frequently appears.

If one voluntarily contract the brows for fifteen minutes he will experience a disagreeable sensation which suggests migraine in mild form. This leads to the ques-

*Read in the Joint Meeting of the Section on Nervous and Mental Diseases, and the Section on Ophthalmology of the American Medical Association, at the Fifty-ninth Annual Session, at Chicago, June, 1908.

1. Deutsche Ztschr. f. Nervenheilk., 1907, xxxii.

2. This statement does not apply to the views of those who find in migraine the precursor of vascular disease and cerebral softening. My conception of migraine is widely at variance with theories which include such outcome. When we weigh the isolated cases supporting this proposition against the hordes of cases running an innocuous course, it seems reasonable to assume that these few cases represent either coincidence of migraine and organic disease or symptomatic headaches which resemble migraine.

3. Eye Strain, Its Importance and Its Limitations, Boston Med. and Surg. Jour., June 22, 1905.

tion whether we must assume the pain of migraine to be entirely intracranial, a doubt emphasized by the recent observations of Cushing[4] showing the non-sensitiveness of the dura, the part to which perhaps more than any other the pain of migraine has been credited. It may assist us to recall a somewhat analogous pain which sometimes appears in the back of the neck and "base of the brain" after long-continued eyework in which the head is held firmly in one position. I have been not infrequently consulted for this pain by persons who have undertaken an uncommon line of work, requiring this posture, the commonest illustration being that of the person who has recently undertaken the position of secretary. This pain so often appears after the completion of the day's work, rather than during the work, that its source is apt to be overlooked. The pain is apt first to appear during the night or in the early morning, and is sometimes decidedly paroxysmal. The only relief is found in discontinuance, or lessening the constancy, of the work (unless, happily, the mere correction of refraction serves the turn). This form of headache is surely muscular rather than intracranial; its analogy to migraine is shown by the fact that it is sometimes preceded by twinkling scotoma.

This occipital form of headache offers a fair illustration of acute occupation neurosis.

The proposition I have to submit is the following:

Migraine is an occupation neurosis, and involves (1) the visual centers; (2) the centers of accommodation (centers of divergence and convergence in the frontal region); (3) the intrinsic and extrinsic muscles of the globe, and (4) the muscles outside the orbit which are called into play in the effort required for accurate vision, principally the corrugator supercilii and occipitofrontalis, and also the muscles inserted in the occipital region, which serve to steady the head.

In order that we may approach the question fairly, it is important that we start with a clear idea of the symptomatology of occupation neurosis in general; its exact pathogeny is hardly susceptible of analysis.

This is a subject not generally understood. "Writers' cramp" has called attention to one symptom (cramp) which is really neither the most prominent nor the most common. Even writer's cramp has its "neuralgic" form, and in other occupation neuroses pain is not only by far the most prominent, but often the only symptom, the other symptoms, weakness, paresthesia and cramp, following with varying frequency and in varying degrees.

An occupation neurosis is a condition resulting from overuse of certain parts. The most constant symptom is pain, generally referred to the overused muscles, but sometimes extending to other parts. Among the less constant symptoms are muscular spasm and paresthesia. The symptoms may be constant or paroxysmal, and are not always synchronous with the muscular overuse which causes them, but sometimes follows after an interval. The disturbance involves the muscles and the sensory and motor cerebral centers which constitute the overused mechanism.

The following case illustrates a common form of occupation neurosis involving the arm:

Patient.—A woman, aged 30, suffered from pain in the thumb and first finger extending up the forearm, accompanied at night by a numb prickly feeling. She practiced much on the piano, carried a heavy music roll, and often sewed a whole evening without stopping. In short, there was almost constant use, in one form or another, of the hand. There was moderate tenderness of the forearm. There was no objective anesthesia or loss of power. The diagnosis of occupation neurosis was made.

Treatment.—No improvement appeared from simple rest, but when a splint was applied and the arm placed in a sling, thus producing absolute rest, improvement soon appeared, and complete recovery followed. She can now use the hand perfectly, but has learned to keep its use within reasonable limits.

The following case presents a connecting link between such cases and migraine:

Patient.—A successful laryngologist from another state had worked for twenty-five years without vacation. He complained of paroxysms of pain in the left side of the neck and behind the ear, sometimes accompanied by tenderness. The pain would come on when his head was placed in the position of operating, become rapidly unbearable if the posture was maintained, and persist after its discontinuance. It would sometimes come on at an interval after operating. Attempts to read sometimes produced the pain. He had astigmatism with correction by a competent oculist. The condition had naturally given rise to much solicitude, and obvious relief of mind followed the diagnosis of "occupation neurosis." The day following the consultation he spent in and about Boston, and for thirty-six hours was entirely free from pain, an experience which he had not had for some time. On the second day he was feeling so much better that he was tempted to return to his work, notwithstanding my advice for a prolonged abstinence from employment. He was desirous of visiting the Massachusetts General Hospital, and I there introduced him to the throat department, in which he was especially interested. Here he spent about an hour, watching operations, and examining throats. On sitting down to lunch afterward a violent paroxysm of pain appeared and lasted for some time. It recurred during the evening on taking up a paper and putting his head in the position of reading. The evening attack lasted several hours, during which the pain was intense and accompanied by tenderness. The only recourse in this case was absolute cessation from work for many months. He is therefore now taking an extended vacation and reports continued improvement.

This case, like many others which have come under my observation, shows that the pain of occupation neurosis may follow the occupation after an interval, just as that of "theater migraine" may first appear on awakening the morning after attending the theater.

The paroxysmal pain illustrated by such cases of occupation neurosis strongly suggests that of migraine. Nor are the minor symptoms of occupation neurosis wanting in migraine. The analogue of the paresthesia is the scotoma, which represents similarly, disturbance of sensory centers. Analogous to the cramp is the ciliary spasm, to say nothing of the facial spasm which sometimes appears in the lids and spreads to other parts, representing perhaps an effort on the part of the overworked centers to close the eye and relieve the tension. I have seen the most long-standing and obstinate cases of this spasm relieved by the correction of refractive error.

The suggestion that migraine is an occupation neurosis does no violence to the opinion of those who regard all migraine as the result of refractive error, and at the same time may prove more acceptable than the reflex theory to those who insist on the hereditary and constitutional basis of migraine. One need only be reminded that all occupation neuroses are more prevalent among the neurotic and the sensitively organized, in whose families appear the varied signs of feeble resistance. It is surely among this class that we look for migraine—but we have not explained migraine by simply conceding its hereditary tendency.

Furthermore, the theory of occupation neurosis would account for cases of migraine in which the patients

4. THE JOURNAL A. M. A., March 14, 1908.

have slight error of refraction, but marked psychopathic heredity, and at the same time explain its prevalence among those who have marked error of refraction, since the eyes are here used with an overwhelming handicap, the relief of which may well cause the disappearance of the neurosis.

According to the occupation neurosis theory migraine may even appear without error of refraction, in other words it may result from overuse of the eyes, or, in cases of extreme susceptibility, from moderate use of the eyes, just as writer's cramp may be produced, doubtless, in the absence of a faulty method of writing. The fact is recognized, however, that a faulty method favors writer's cramp, and, similarly, error of refraction is doubtless more potent than any other one factor in the production of migraine.

It is no objection to this theory that some individuals use the eyes continuously without migraine, while others acquire this trouble with comparatively little use of the eyes. The same is true of all occupation neuroses. One individual can practice with immunity on a musical instrument from early morning till late at night; in another individual symptoms of occupation neurosis appear with a few hours' exercise.

It may be objected that no account is taken of the vasomotor phenomena of migraine, a factor on which Eulenberg long ago based his entire theory of the pathology of the condition. But the vasomotor changes, in my view, at least, are so far from constant that they are not to be taken into consideration in the search for causal factors, but are rather to be reckoned, when present, as among the comparatively unimportant accompaniments. This is the view long held by Gowers.

The vasomotor symptoms are not only secondary rather than primary, but, in fact, they are not always present. All suppositions based on dilatation or contraction of blood vessels as a primary cause of migraine lead to theoretical considerations which obscure rather than clarify our ideas of migraine. And, further, all such theories are based on a fallacy, namely, that contraction and dilatation of blood vessels necessarily cause pain. To confute this proposition we need only remind ourselves of the extreme dilatation of blood vessels in the blush of shame or the turgidity of anger, on the one hand, and on the other hand, with the pallor of fear and faintness. Even the extreme degree of vascular spasm which results from cold produces numbness rather than pain. It is true that after exposure to cold with resulting vascular spasm, if warmth is too quickly applied, a vascular dilatation follows which is accompanied by extreme pain, but when we consider the extreme degree of vascular dilatation that produces no pain, it is questionable whether the pain is to be attributed simply to dilatation.

The vomiting is difficult of explanation by the theory offered, but it is not less difficult by any other theory. In point of fact, this symptom is probably not one of the essential features but rather an indirect result appearing generally only in the young and at the height of the paroxysm, representing rather a protective effort on the part of Nature, through producing general and special relaxation, just as fainting may appear at the height of pain, resulting from whatever cause. The fact that relief does often follow the vomiting fortifies this supposition.

CONCLUSION.

Migraine is an occupation neurosis resulting, in individuals of neurotic inheritance, from overuse, or use under the handicap of refractive error, of the parts concerned in vision.

It involves, like other occupation neuroses, disturbance of (1) sensory cerebral centers (those of vision in the occipital region); (2) motor cerebral centers (centers of divergence and convergence in the frontal lobe); and, (3) certain muscles (particularly the intrinsic and extrinsic muscles of the globe, the corrugator supercilii and the occipitofrontalis, and also the muscles which steady the head).

The pain of migraine is not necessarily intracranial, but is localized, in part at least, in the region of the muscles concerned, directly or indirectly, in vision.

DISCUSSION.

DR. H. GRADLE, Chicago: In one-fifth of my records of migraine (headache of periodic occurrence), an ocular origin could be excluded at the start. Of one hundred patients observed by me (consecutive but not selected cases), twenty-two were practically, under ordinary circumstances, relieved of their migraine by glasses as long as they wore them continuously. A few complained again whenever the glasses were omitted. Of these 22 patients, twelve had complained of their eyes, while ten had either not known that their eyes were at fault or had been annoyed only to a trifling extent. Among the cured two had hyperopia, five had astigmatism against the rule or with an oblique axis amounting to 0.37 D. or more, and fifteen astigmatism with the rule (0.5 D. in two instances and > 0.5 D. in thirteen cases). An impression that I had gradually formed of the greater significance of astigmatism against the rule or with oblique axis is not fully borne out numerically by an analytic review of these records, but it is again strongly suggested by noting throughout my case books the more frequent coincidence of migraine with lower degrees of astigmatism (0.37 to 0.5 D.) when the meridian of greater curvature was not vertical. It has also seemed significant to me that one-sided migraine occurred strikingly often on the side of astigmatism with oblique or inverse axis in asymmetric cases (three in this series). Cases of migraine exclusively or mainly one-sided are especially instructive when the attacks occur on the side of the astigmatic eye and are permanently avoided by suitable correction (eight times in these twenty-two). It is significant that hyperopia of unequal degree in the two eyes does not provoke one-sided migraine. In fact, simple hyperopia figures only in a small proportion of the fully relieved (as well as the much benefited) cases.

Of the hundred patients, thirty-two were only partially relieved of their periodic headache. The headaches were less frequent or less severe and shorter. A few of these returned after years with the history of a long partial relief, but with recent increase in the attacks, though with optic change.

Twenty-six received glasses that proved useful as far as the eyes were concerned, but which did not influence the migraine. To these twenty-six I ought to add one-quarter (five) of the remaining twenty, who had previously been given correct glasses by others without benefiting the migraine.

The results are:

22 practically cured by glasses.
22 benefited by glasses.
31 not influenced by glasses.
15 not requiring glasses (except simple concave spheres).

Among those merely improved or not influenced as regards the migraine were a number who had besides the typical periodic attacks other forms of headache which were practically cured by their glasses.

An analysis of the imperfect results and failures showed an absence among them of one-sided migraine corresponding to the more astigmatic eye. Yet among the patients least improved there were a few pronounced instances of hyperopia and astigmatism of 1.5 to 2.5 diopters. There was also a scarcity of astigmatism against the rule (or oblique) in the negative series. In those least influenced by glasses there was oftener the history of attacks with fairly regular periodicity dating back to childhood than in the more benefited class of patients. The proportion of simple hyperopia was least

among those entirely cured and greater in those only partially influenced.

I believe that there are various factors involved in the etiology of migraine. Heredity is one of the most constant, but not an invariable one. Anemia, poor nutrition, want of outdoor exercise and indoor confinement have in many instances coincided with pronounced aggravation. In relatively infrequent instances migraine may depend on suppuration of a nasal sinus or the existence of a nasal stenosis. In nearly one-half of my observations there has been no relation between migraine and the eyes. In fact, I have even found the neurosis fairly common among people who do not do much close eye-work. Yet in about one-third the correction of hyperopia and astigmatism made the patient less liable to migraine or reduced its severity. In fully one-fifth of my cases the headache could be practically prevented by the use of suitable glasses, when worn continuously.

The scintillating scotoma is the symptom which more than any other suggests an ocular origin of migraine—at least to the patient. The scotoma does not, however, prove the ocular origin of the migraine, as in thirty-five instances tabulated from my records I find twenty not requiring or not improved by glasses, while nine were benefited and six were cured by spectacles. In two of the cured and three of the benefited only hyperopia and not astigmatism needed correction: in several others compound hyperopic astigmatism was found.

DR. LUCIEN HOWE, Buffalo: We began by using this term "migraine" in a most indefinite sense, meaning either one of two entirely distinct diseases, and we are now just beginning to recognize a difference between them. We still talk about "headaches," but that term may mean almost anything. Head called attention some time ago to the necessity, when we speak of headaches, of stating just where that ache is, what is its area, and also what is the area of increased or decreased sensibility. As long as we talk in a general way about headaches, we are simply increasing the chaos which exists. Again, when we speak of the strictly ocular symptoms, we may mean either the condition of the refraction or the condition of the intraocular or of the extraocular muscles, or of both. That abnormality may be primarily in either or both of these groups of muscles, or may be shown in them only secondarily in the effort to overcome any ametropia which may be present. Now, in any given case, if we do not know what those factors are, we are discussing something indefinite, and increasing the confusion of our ideas. Headaches, especially when localized in the muscles in the frontal region or at the back of the head, are apparently due to the action of the accessory muscles of accommodation. When we contract the frontal portion of the occipitofrontalis we draw also on the occipital portion. That strain can often be relieved, as we know, by proper glasses or by cycloplegics.

DR. HUGH T. PATRICK, Chicago: The use of the eyes is not an occupation at all; it is a function. The idea of occupation implies something acquired for a definite purpose. Occupation is connected with the artificial conditions of modern living, or, if you like, with the present state of evolution or development of humankind. To put an occupation side by side with a thing as remotely, as anciently physiologic, as the use of the eys, is, I believe, altogether a strained comparison. According to my understanding of Dr. Walton's abstract, there might be ascertainable eyestrain and there might not be; but the idea was that the migraine might have been produced merely by the use of the eyes in a susceptible individual. I believe that this is an untenable position, because the use of the eyes is a function just as much as mastication, digestion and defecation, and we do not call those occupations at all. Of course, one may abuse his masticator apparatus or his digestive apparatus, and he may abuse his bowels, and if he does, he pays the penalty; but to say that a man has an occupation neurosis simply because he exercises, as he is bound to exercise, these functions born away back low down in the primordial something which was originally the progenitor of man, is rather far-fetched.

DR. ALBERT E. STERNE, Indianapolis: We must all recognize the fact that no organs of the body are so constantly in function as are our eyes; that considering the innervation of the eye, it is hardly wonderful that irritating effects should expand themselves on the central nervous system, notably the brain, through the medium of the eye. I should, however, like to register a strong objection to considering migraine as an occupation neurosis, not only on the grounds that Dr. Patrick has brought forth, but also on the ground that there is in all probability a very subtle but not well-understood relationship between true migraine and epilepsy. It is peculiar enough that the subject of migraine and the subject of epilepsy should come into close contact with the oculists so frequently. It is possibly due to the fact that there is much to be said from the ophthalmic standpoint in dealing both with migraine and with epilepsy. Shall we regard epilepsy as an occupation neurosis? Is there any similarity, or is there even a remote connection between migraine and epilepsy? These questions are far from being solved. We have absolutely no knowledge of the pathology of true, essential epilepsy or of the pathology of true migraine. We know from certain facts and experiences that the two seem to run hand in hand frequently enough. I have seen cases of true migraine, periodic migraine, cease, and in their place I have seen epileptic seizures for a series of years—major seizures at that, not minor—and I have seen these epileptic and epileptiform seizures cease and the migraine become re-established. Such conditions are not extremely frequent, but still they occur in sufficient numbers to warrant us in regarding them as possibly allied, though I do not think that they are anything like identical. They may, however, be founded on similar causes in any given case. On the other hand, they may arise coincidently and independently.

DR. D. I. WOLFSTEIN, Cincinnati: The supposed effect of the constant contraction of the occipitofrontalis muscle in case of headache in connection with occupation neurosis would not appeal to me, as in many cases of headache the patients voluntarily and frequently contract this muscle with a view to getting relief from the headache. I do not doubt that in epileptics or those who have an epileptic diathesis or tendency occasionally a migrainoid attack may stand in the relation of epileptic equivalent, but I do not believe that migraine and epilepsy are interchangeable and closely related conditions. Certainly most of those who suffer from migraine have nothing in their history to lead to the slightest suspicion that they are in any way epileptic. I do not believe that migraine is often an occupation neurosis because it would be difficult to say what particular occupation itself causes migraine in a very large per centage of cases. Indeed, it is more apt to affect people who have no occupation at all. I believe that there is a very decided connection in many cases of migraine and disturbance of digestion and that a fair proportion of cases are best treated when we take into consideration the gouty, arthritic, or autotoxic forms of disturbance. Often if we treat these cases along the lines of improved elimination and alimentation, with the exclusion of those factors which are toxic in character, particularly the digestion of too much meat, good results are obtained. In my judgment you will find that many cases of migraine are intimately connected with a disturbance in the digestive tract and that the factor of occupation is not of particular moment.

Propaganda Against Cancer in Uruguay.—L. Calzada in a communication to the *Revista Med. del Uruguay*, February, 1908, compares the statistics of uterine cancer in various countries, especially in regard to operability. It was only 7 per cent. in his experience with 187 patients; in France the best statistics give only 20 per cent.; in Italy, 5 per cent.; in Holland, 9 per cent. He urges sending out circulars to physicians impressing on them the importance of early discovery of cancer, also circulars to midwives urging them to send to physicians all their patients with gynecologic affections, emphasizing their responsibility if they allow lesions to pass undiscovered. He also urges education of women by lectures and pamphlets in regard to the dangers of neglect of uterine disease, advocating that this propaganda should be initiated and carried on by medical societies or official bodies to avoid opportunity for individual advertising by irresponsible individuals.

OCULAR COMPLICATIONS OF PREGNANCY.*

HIRAM WOODS, M.D.
BALTIMORE.

In dealing with the ocular complications of pregnancy, I shall try to present the bearing of recent pathologic investigations on the cause of serious eye disturbance. Medical literature shows that there is scarcely an eye disease which has not been more or less directly traced to the pregnant state. Some of these we now know are not distinctively so caused. Pregnancy, at most, increases liability by lessening resisting powers. Power[1] published three interesting papers, claiming that, among other complications, pregnancy produced a definite type of superficial central ulceration of the cornea. With our present knowledge of the rôle of infection in corneal ulceration, it seems more natural to attribute to pregnancy only such influence as is seen after any other severe tax on the system.

The same is true of the supposed tendency to phlyctenular ophthalmia. Asthenopia, with its defective accommodation, short of absolute paralysis, varying muscular anomalies, occasional blurring of vision, may be laid at the door of the general nerve tax under which the pregnant woman lives. One must take into account, too, from the same cause, an increase in a pre-existing hysterical habit. Thus, Knies[2] reports cases of temporary blindness, without urinary abnormality or ocular lesion, occurring after unusually painful labor. A patient of Szili's became suddenly blind from the opening of a window in a darkened room, and recovered only after six weeks. Then there are the considerable classes of metastatic ocular infections, of amblyopia from excessive hemorrhage, of lighting up of a latent syphilitic lesion, which would probably have remained quiet but for the overtaxed metabolism. I have seen specific chorioiditis relapse during pregnancy. But in all these cases there is, so far as I can see, nothing that is not observed after numerous other conditions.

Apart from temporary functional derangement, hysterical or neurotic, and diminished tissue resistance, there are certain ocular troubles of intensely serious significance to eyesight and even to life, which are observed with sufficient frequency during pregnancy to make the relation of cause and effect almost certain. For purposes of study, they may, I think, be divided into four classes, based on clinical manifestations: (1) The so-called uremic amaurosis, or sudden and complete blindness, without ophthalmoscopic lesion; (2) The hemorrhagic, exudative and degenerative changes in the retina, occurring in connection with albuminuria, and termed albuminuric retinitis of pregnancy; (3) Temporary or permanent loss of central vision or some portion of the visual field, without retinal lesion, the fundus either appearing normal or showing pallor of some portion of the optic disc; (4) A definite neuroretinitis, with hemorrhages and exudates, but not resembling the albuminuric retinitis.

We may consider each of these separately.

1. *Uremic Amaurosis.*—In its association with pregnancy, the term has the same meaning as in nephritis: sudden occurrence of total blindness (usual form), or great impairment of vision. There may be associated other nervous symptoms, such as headache, vomiting, etc. Pupillary reaction is usually maintained, and Fuchs thinks this proves "that the location of the affection can not be in the eye or the optic nerve, but higher up, i. e., in the brain, which is poisoned by the excretory matters retained in the blood."

No lesion is found in the eye, and while this form of blindness has the gravest possible significance in chronic nephritis, and may be serious in pregnancy, it is usually transitory in the pregnant woman, provided she survives other complications. So far as my observation goes, it is confined, when occurring in pregnancy or parturition, to eclamptic cases, and follows the convulsion. The cause of this blindness is usually attributed to uremic poisoning, dependent on kidney disease.

The name, uremic amaurosis, is applied to cases incidental to pregnancy and parturition, because of the similarity of symptoms in the nephritic and parturient forms of blindness, the usual co-existing albuminuria, and the deeply grounded belief that it is through the medium of the kidneys that pernicious vomiting, puerperal convulsions and blindness occur. Difference in the prognostic significance of nephritic and parturient blindness is generally attributed to the fact that in the former the kidneys are in an advanced stage of disorganization, while in the latter the cause of blindness terminates with labor; but that parturient blindness is uremic and that derangement of kidney structure and function is essential to its production seems the fixed teaching of to-day, so far as our text-books go.

2. *Albuminuric Retinitis.*—The characteristic silvery-white, radiating spots, seen in the perifoveal region and at the disc margin, are too well known to need description. In both chronic nephritis and pregnancy the appearances are practically identical. As is well known, in the former these spots are considered of grave significance, and a fatal termination usually comes within two years. In pregnancy, they may appear as early as the third or fourth month, but usually they are seen toward the close of pregnancy.

According to Fuchs these white patches are made up of "fatty degeneration of the retinal elements and of the cells of the exudate." De Schweinitz states that in the retinitis of pregnancy the type is most often inflammatory, and that with the termination of gestation these inflammatory deposits may subside. It is on this possibility of absorption of inflammatory exudates before destructive processes have occurred in the retina, that we base the better prognosis in this form of retinitis. Hence, there is a practical unanimity of opinion that the only logical treatment is induction of labor. While, however, this is true, and while the kidney lesion of pregnancy, to which the retinal inflammation is attributed, is, as Fuchs says, "benign," there is not in our ophthalmic literature much suggestion of any other pathway from the uterus to the eye than through the kidney. Is this a logical or correct position in view of teaching from modern pathologic investigation?

One finds in treatises on obstetrics uniform warning about the increased danger from pregnancy to a woman who has chronic nephritis. She is certainly more liable to show remote complications of kidney inflammation than she would be if the extra burden of pregnancy were not put on her. But if she develops uremic blindness or albuminuric retinitis during or at the close of pregnancy, the latter condition can no more be blamed for the complication than other influences which are known to exert a bad effect on chronic nephritis. At most, gestation is only an exciting cause and the complication

* Read in the Section on Ophthalmology of the American Medical Association, at the Fifty-ninth Annual Session, held at Chicago, June, 1908.

1. Lancet, Lond., May 8, 15, 22, 1880.
2. The Eye in General Diseases.

is really dependent on the antecedent nephritis. The same is true of acute nephritis, from any of its usual causes, developing during gestation. Danger of remote complications or even of a fatal ending are greater. But this is not equivalent to saying that pregnancy can cause real nephritis, or that, in a woman, free from kidney involvement before pregnancy, the latter can so influence kidney structure and function as to produce through them grave ocular complications. Indeed, the weight of opinion seems the other way.

In the American Text-Book of Obstetrics the author of the chapter on the pathology of pregnancy says: "An acute inflammation of the kidney can not be caused by pregnancy, and is only observed in the rare cases where infective bacteria find entrance to the genito-urinary tract of the pregnant." J. Clifton Edgar states that "the kidney is affected in pregnancy by lesions which stop short of actual nephritis." This lesion is "purely a disease of the renal epithelium which undergoes fatty metamorphosis—a deposit and not a degeneration."

It may be well to speak a moment of the so-called "kidney of pregnancy," a condition to which we are apt to attribute too much importance. J. Whitridge Williams mentions it only incidentally in the first edition of his book, and in the second edition says: "It is a slight degree of nephritis. . . . Such conditions are nearly always connected with the various disturbances of metabolism which will be taken up under toxemia of pregnancy." Edgar says: "There is an affection to which the term 'pregnancy kidney' is familiarly restricted, and which is certainly not due to pressure, nor has it anything in common with ordinary nephritis, whether pre-existent or developing during gestation as a result of exposure or infection. In one sense, the notion of pregnancy-kidney is a negative one, formed after the exclusion of other renal lesions, and including numerous conditions which present little in common." Hirst seems to attach more importance to it than most modern writers, and says: "There is often albuminuria in advanced degrees of the condition. Hyaline and granular casts, with epithelium filled with fat, may be found. The kidneys may prove physiologically insufficient, and there may appear all the symptoms of renal insufficiency observed in true nephritis." Hirst also differentiates between chronic nephritis and the kidney of pregnancy, and says that in the latter the kidney symptoms are usually confined to the last months, while in nephritis they are pronounced at an early stage; and, again, that so far as his experience goes, albuminuric retinitis does not appear in the kidney of pregnancy, unless symptoms point to chronic nephritis.

The question I am trying to present is—are ophthalmologists justified in limiting their conception of the etiology of pregnancy-blindness or retinitis to renal lesions? Pregnancy does produce temporary blindness, and sometimes permanent impairment of vision in women previously healthy. It does cause retinal spots of exudation and degeneration in the same class, and the retinal lesion is usually accompanied by albuminuria. But is albuminuria the pathway to the retinal disease, or is the blindness essentially uremic? The recognized authorities from whom I have quoted might be multiplied, but such a course would only confirm the opinions expressed: (1) That pregnancy itself does not produce nephritis; (2) That the so-called kidney of pregnancy is usually insignificant in its effects, and recovers; (3) That it does not produce what we term "albuminuric retinitis."

We may now study the matter from another point of view. The dimness of vision or blindness in cases which do not show retinal lesion usually comes toward the close of gestation, during or after parturition. Again, the visual defect is one of a symptom-group of which headache, somnolence, convulsive seizures, etc., are members. This array has received the name of eclampsia, and convulsions are its prominent manifestation. As is well known, puerperal eclampsia, or convulsions, was generally thought, until late years, to have a renal origin. This opinion was based on the close resemblance of the puerperal to the nephritic seizures, and the usual presence of albuminuria.

Beyond mention of a few facts it is needless to discuss the reasons for abandoning this theory. Briefly, the insignificant renal changes often found at autopsy, and absence during life of symptoms of renal involvement in cases of eclampsia, started investigations which have led away from the renal theory. Edgar agrees with Williams that the pregnancy kidney is most probably a mild product of toxemia. He adds: "The all-important subject of the connection between this renal lesion and eclampsia is best accounted for by attributing the latter to the toxic state and not to the kindey lesion, which is itself the result of the same or an allied toxemia. There is, moreover, every reason to believe that this unknown toxic state of the blood is not uremia."

In the last edition of his work on obstetrics Williams reviews at length his own work on the pernicious vomiting of pregnancy, first published as a monograph in 1906, and includes the work of Prutz, Schmorl and others. A brief summary of conclusions may be given. In pernicious vomiting there are found hepatic changes identical with those found in acute yellow atrophy of the liver. There is profound necrosis of the central portion of the lobule, while the periphery remains intact. The lesions differ from those observed in eclampsia in which the process is essentially one of thrombosis and begins in the peripheral spaces. Williams urges that the hepatic changes in both pernicious vomiting and eclampsia may account for at least part of the urinary changes through the non-conversion of nitrogenous material into urea and its excretion as ammonia. He continues, "It should not be believed that the essential process consists in the hepatic or renal lesions, but in an underlying toxemia, to which they are due."

To summarize those parts of the work which touch ocular problems, it seems to be the prevailing opinion (1) That eclampsia of parturition is not uremic; (2) that both eclampsia and pernicious vomiting are results of a toxic substance circulating in the blood whose nature, or natures, are unknown; (3) that these toxic substances are capable of profoundly affecting the liver, and do so in a much more characteristic way than they do the kidneys; (4) that these substances can produce thrombosis in many of the smaller vessels with consequent degenerative and necrotic changes in various organs.

This conception of the serious complications of pregnancy, if confirmed, will put renal complications in the list of toxic effects. It will also influence our conception of these renal complications as the cause of ocular disturbances. The question will arise whether the toxemia which produces the renal, hepatic and other lesions may not also produce the ocular disturbances and lesions. If eclamptic convulsions are not uremic

except in cases of aggravated pre-existing nephritis, it seems more logical to attribute the temporary blindness of eclampsia to the toxemia of the latter, than to bring in an uremia whose existence is at the most hypothetical. A toxic substance capable of causing such profound nerve disturbances as convulsions and many of the sequelæ might affect the optic centers as well. And, as a matter of fact, we know that these centers are often affected, sometimes permanently, by toxic agents having no connection with uremia.

SECONDARY EFFECTS OF TOXEMIA.

The secondary effects of a toxemia are many; edema, exudation, thrombosis, apoplexy, etc., are among them. They affect the nervous system as well as other parts. Among 65 eclamptic autopsies Schmorl[3] noted thrombi in the smaller cerebral vessels in 58. Edema, hyperemia, etc., were practically constant.

Bearing these facts in mind, we may for a moment look at what we term the albuminuric retinitis of pregnancy. I think all of us have seen nearly identical appearances in patients without albuminuria. I have seen them in a chlorotic girl, with functional menstrual trouble, clearing up with improvement in general health. There was no albuminuria. I have seen them in an apparently healthy boy, without known cause, who later developed a chorioiditis of exudative type in the other eye. In a case of neuroretinitis from venous thrombosis during pregnancy the characteristic retinal spots were evident. Yet there was no albuminuria.

Dr. James Bordley has been making careful study of ocular changes in cases of brain tumors at the Hopkins Hospital. He tells me that he has studied two hundred cases, but at this writing has tabulated only half. Yet in sixteen he found spots in the retina which he would have called albuminuric. The urine was normal. Diagnosis of intracranial neoplasm was confirmed by operation or autopsy. He and Dr. Cushing attribute the retinal changes to pressure, edema, exudation and consequent degeneration without inflammatory processes. All these are logical results of toxemia.

We have, then, the facts that other conditions than albuminuria can produce the characteristic clinical retinitis which has been called albuminuric; that among these are effects produced by toxemia, and that it is to a toxemia that kidney changes in pregnancy are attributed; that in cases in which premature labor has been induced, cure of the retinal lesion has followed. I do not think it is going too far if one urges, with evidence at hand, that we cultivate at least an open-mindedness regarding the causation of what we have always termed the albuminuric retinitis of pregnancy. Such a state of mind has one very important bearing on therapeusis. So long as we interject an albuminuria into our thinking we will be in imminent risk of sacrificing eyes. There is but one remedy that will cure the disease—prompt emptying of the uterus. But if there is no albuminuria, and we believe this to be an essential pathologic factor, we will miss our only opportunity to save vision, and subject the patient to the risks of a profound toxemia, already evidencing its presence in a most dangerous form.

3. *Loss of central vision or some portion of visual field, without retinal lesion.* In 1902,[4] I reported a case, the fields of which are here reproduced (Figs. 1 and 2). Her history is given here as Case 1. At the time I was able to find only one such case reported in medical literature, but another has since been found,[5] and it is more than possible that there are others, under one name or another.

CASE 1.—Patient was 33 years of age, in her first confinement. From the sixth month there had been traces of albumin, and careful watch had been kept. Her pregnancy was closed abruptly toward the end of the ninth month by instrumental delivery, after a single convulsion. Recovery was without incident, except that for four days she had transient visual disturbances, and then, with an atrocious headache, she suddenly lost the left field of vision. This was in September, 1901, and the loss has been permanent. Dr. Whitridge Williams recently furnished me with the following data concerning the urine. Its importance was not duly appreciated by me when the original report was made: "For the week prior to the eclampsia the daily amount of urine varied from 43 to 64 ounces, while the albumin and urea content varied from 0.5 to 1.5 grams and 7 to 10.5 grams, respectively. For the week following the eclampsia the quantity of urine varied from 33 to 65 ounces, the albumin occurred only in traces, while the urea content varied from 15 to 21 grams per day." The significant element is diminished output of urea.

CASE 2.—In this case the fields were taken in May, 1903, and again in March, 1908 (Figs. 3, 4, 5 and 6). Central vision then, as now, was 20/20. The papilla now is slightly pale (?). The following history was furnished by Dr. Williams: "The patient is a well-nourished woman, 37 years of age. Her fourth pregnancy began March 16, 1902. In July she complained of some headache and diminished urinary output. At this time the daily quantity of urine was 29 ounces, which contained no albumin and only 10 grams of urea. She was immediately put on a milk diet, and in the course of the next few days the urinary output had increased to 67 ounces, and the urea to 16 grams per day. Following this all symptoms disappeared. A 24-hour specimen, seen December 12, contained no albumin and 20 grams of urea. The patient went into labor on Jan. 1, 1903, and had an easy spontaneous delivery after eight hours of labor pains. The child was normal and weighed 7½ pounds.

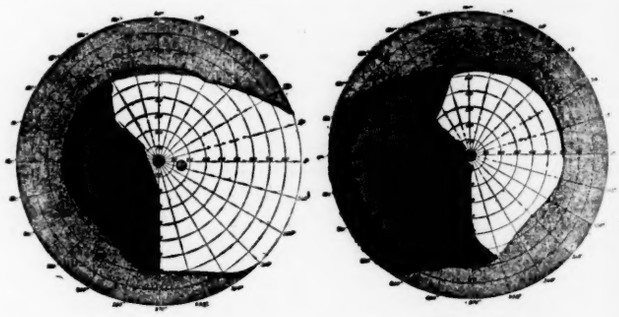

Figure 1. Figure 2.

Figs. 1 and 2.—Case 1. Fields showing loss of a portion of visual field without retinal lesion.

"The third day after labor the patient began to complain of flashes of light in her right eye, and the next day of intense neuralgic pains, particularly on the right side of the head. (The defect in the visual field occurred two or three days later.) January 13 there was a feeling of numbness on the left side. Closer examination showed a complete hemianesthesia. At the same time the muscular forces were considerably diminished as compared with those of the opposite side. On the seventh day of the puerperium the urine was negative, but on the thirteenth day it contained a trace of albumin, but no casts. A 24-hour specimen on the nineteenth day amounted to 50 ounces, and contained 42 grams of urea and a marked trace of albumin, with a few casts." Blood examination showed 4,240,000 red cells, 11,500 white cells, hemoglobin 50 per cent.

She was put on iron and made a complete recovery, except for the hemianopsia and nervous symptoms on the left side.

3. Williams' Text-Book.
4. Proc. Am. Ophthal. Soc.
5. Brit. Med. Jour., Sept. 30, 1893.

There is still, five years later, marked impairment of sensation in the left hand and diminished muscular force, as compared with the right hand.

Dr. H. M. Thomas saw this lady in 1903, and I append a report he made in 1905: "She has, two years after the attack, marked sensory disturbance over the whole left side. Touch is perceived nearly normally, but painful stimuli with the point of a pin are not felt as sharp pricks, but at times are painful. There is marked disturbance in the perception of hot and cold stimuli. Heat is usually not perceived at all, and cold is only felt as pain and not as cold. Muscular sense is somewhat disturbed in the hand, and there is a complete loss of the stereognostic power. There is also some ataxia in the movements of the left hand. The symptoms, I believe, are the result of softening in the posterior part of the internal capsule and the region just posterior to it, probably due to a thrombosis of the posterior cerebral artery."

CASE 3.—The patient had had five miscarriages, but was delivered of a full-term dead child Sept. 26, 1906. The history suggests syphilis. Her physician being dead, no particulars of gestation, etc., are obtainable. However, she had never noticed any visual defect until she was up after this confinement. Then she found herself running into chairs, etc., on the right side,

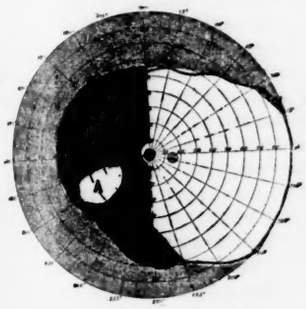

Figure 3.

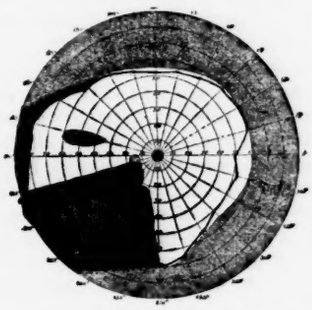

Figure 4.

Figs. 3 and 4.—Case 2. Showing visual fields as found in May, 1903. A, Dim area.

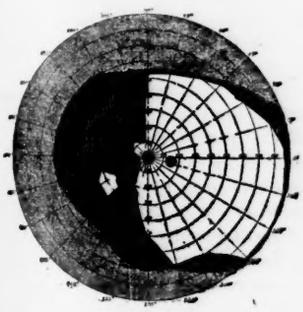

Figure 5.

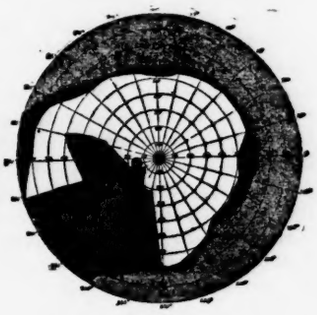

Figure 6.

Figs. 5 and 6.—Case 2. Showing visual fields as found in March, 1908. The light area within the solid black in Figure 5 indicates the dim area.

and consulted Dr. J. J. Carroll, of Baltimore, who found normal central vision and the fields shown in Figures 7 and 8. She was in excellent health.

As stated, when I reported my first case in 1902, I found but one case on record, and this showed temporary right hemianopsia. F. Pick, who investigated the case, thought the visual disturbance resulted from a toxic paralysis of the central tracts of the optic nerve, with more marked involvement of one hemisphere.

R. Lawford Knaggs[5] reported the case of a woman, 40 years old, who for eight years had been blind in the left eye. The blindness was first noticed after confinement. Though not stated in the report, it is evident that she was pregnant when she applied for refraction correction for the right eye. In the course of six weeks vision failed, while the field, taken before abortion, is shown in Figure 9. There was no albuminuria. Eleven months after abortion central vision was normal, and the field showed loss of vision in the right lower quadrant (Fig. 10). The reporter thought the case one of reflex amblyopia, and quotes this explanation from Mr. Priestly Smith, "A peripheral stimulus acting through the sympathetic nerve leads to a vasomotor effect within the eye, and the defects of sight are produced through the medium of the vessels of the capillary layer of the chorioid. . . . The amblyopia is due to the impaired nutrition of the rods and cones." Mr. Knaggs recognizes that the permanent loss of a field quadrant is against this explanation, but attributes it to commencing atrophy. It is noteworthy that in the discussion E. F. Drake Brockman took exception to a reflex explanation, and hinted strongly at what we now term toxemia, with resulting hemorrhage or thrombosis. He calls it "the altered character of the blood."

J. Herbert Fisher[6] reviews several cases of what he terms "Obstetric Neuritis," reported by Dr. H. G. Turney.[7] Fisher adds a case of paralysis of one pupil,

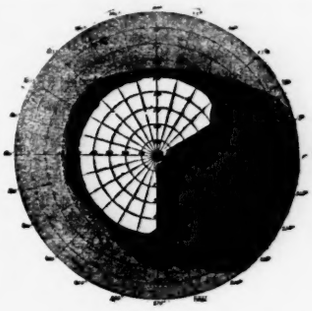

Figure 7.

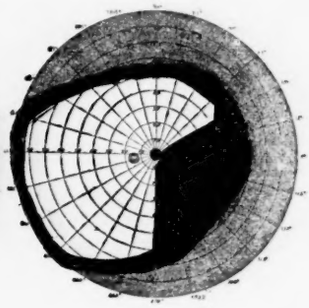

Figure 8.

Figs. 7 and 8.—Case 3. Showing visual fields as they appeared shortly after confinement.

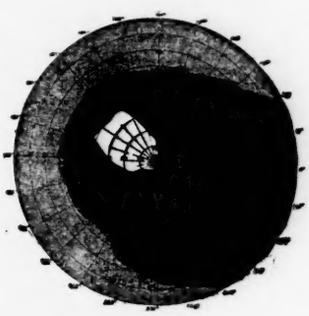

Figure 9.

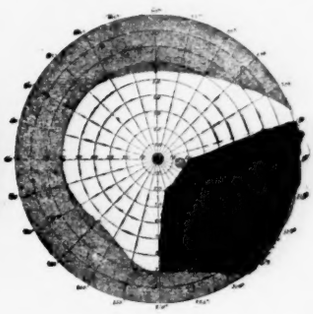

Figure 10.

Fig. 9.—Knaggs' case. Visual field taken just before abortion occurred.

Fig. 10.—Knaggs' case. Visual field taken eleven months after abortion.

occurring during pregnancy, in connection with other nerve derangement. Incidentally, he quotes Turney's criticism of Knaggs' case, Turney attributing the blindness to a retrobulbar neuritis of toxic origin.

Mention may be made, finally, of a case reported by Dr. Charles J. Kipp, of Newark.[8] The patient lost vision in the right eye after four pregnancies, in each of which there had been ocular trouble. Dr. Kipp saw her first after her third confinement. Except for a slight loss of transparency in the region of the disc the fundus was normal. Yet there was an absolute central scotoma. There was no albuminuria. In the fourth pregnancy,

6. Ophth. Rev., xvii, p. 317.
7. St. Thomas' Hosp. Rep., xxv.
8. THE JOURNAL A. M. A., June 30, 1906, p. 1986.

with reduction of vision to light perception, there was pallor of the disc, with indistinctness of outline. Later small hemorrhages appeared in the retina. The case ended in total atrophy. Dr. Kipp says that to him "it seems most probable that the pregnancies caused a disturbance in the vascular supply, a congestion at or near the apex of the orbit, and that this produced pressure on the optic nerve and its sheaths." He says that others have attributed such conditions to autointoxication.

In all these cases, I think, nephritis can be excluded. The vascular supply and reflex explanations do not seem reasonable. From what we now know of the toxemias of pregnancy, of the results of toxemia in producing edema, thrombosis, exudation and necrosis, of the frequency of involvement of the nervous system in this toxic process, it seems to me that we abandon an adequate and ready explanation when we leave this field. For instance, Dr. Kipp's case, with its central scotoma in the third pregnancy, partial recovery between pregnancies, preservation of peripheral vision throughout, seems to be a typical picture of a recurrent toxemia.

These fields are worthy of more than passing notice. In some of them the entire half is obliterated. In others, where part of the affected retinal half is spared, the tendency is decidedly toward permanent involvement of the lower quadrant. I do not know why this should be. But it has, possibly, some bearing on etiology. Assuming, as I think we should, that toxemia is the basis of the lesions, the fields indicating total obliteration of a retinal half are probably the result of a necrotic process, while those showing preservation of a quadrant are more likely the result of toxic neuritis, certain fibers ultimately escaping, while others were destroyed. Thrombosis, necrosis and neuritis are essential factors of deep toxemia. It is also interesting to compare Figures 3 and 5, and 4 and 6. These are taken five years apart, from the same eyes. The large "dim area" in the lower nasal quadrant of Figure 3, taken in 1903, is found in the midst of a large scotoma. Figure 5 shows some preservation of this seeing spot. Figure 4 shows that in 1903 there was a scotoma in the upper temporal quadrant, and five years later (Fig. 6) this has broken through and joined the obliterated lower temporal quadrant.

The last ocular complication of pregnancy of which I shall speak is a hemorrhagic, exudative retinitis, and does not suggest the type known as albuminuric I have seen only two such cases, and these within the past four weeks. I have not had time to make as complete a study of the literature as I should like, and hope at a later period to present the cases in a more thorough manner. However, the little research I have been able to make justifies classifying them as complications of pregnancy. Enough has been found to prove that others have observed this form of neuroretinitis during pregnancy.

There is a brief review[9] of an article by Paul Bar[10] on the poly- and mono-neurites of pregnancy. He cites two cases, one a young woman of 22, who lost both eyes in successive pregnancies from neuroretinitis. In this case there was albuminuria. In a second case, dimness of vision had been experienced toward the close of a first pregnancy, but little attention was paid to it. Later, Panas diagnosed optic neuritis. A second pregnancy destroyed both eyes. No mention is made of the urinary examination in this review, but Puyo,[11] states that the second case did not present symptoms of kidney involvment. Groenouw[12] says: "But retinal diseases, and hemorrhages in the retina in particular, also occur in the pregnant woman whose urine is free from sugar and albumin and who has no cardiac disease. Te-Mais reports on four such cases, of which three were completely cured after delivery. In the fourth case, hemorrhages of the conjunctiva appeared in the third month of pregnancy, and two months later in the retina."

Puyo studied the neurites of pregnancy thoroughly and goes over some of the cases mentioned in this paper. He concludes that the underlying cause is a toxemia of unknown nature, and excludes the kidney. The renal lesions, when present, he thinks secondary.

With this brief review of published cases, which seems sufficient to establish the existence of a pregnancy-neuroretinitis, I want to give clinical notes of the two cases recently observed, with special reference to the methods of diagnosing their toxic origin.

CASE 4.—*History.*—Feb. 20, 1908, I was consulted by a lady, 35 years of age, from the South, for blindness of the left eye. She was the mother of five healthy children. In November, 1907, when she thought herself pregnant, she had, from some cause which could not be satisfactorily determined, a hemorrhage, which was diagnosed as a miscarriage. She made a prompt recovery. The December menstrual period was shorter than normal, and that in January was missed. Her own conclusion was that she had become pregnant shortly after her menstruation in the first week of December, and the usual appearance of morning sickness confirmed her opinion. In all her previous pregnancies she had been unusually well, but in this she had not felt well, with inclination to avoid exertion, etc. As nearly as she could place the date, her first eye symptoms had appeared on January 8, when she noticed that the lower field of vision was obliterated. She was sure that this was confined to the left eye. In a day or two this cleared up, but after an equal interval she became conscious that the left eye saw poorly, and soon sight was lost altogether. She consulted a local oculist, who correctly diagnosed neuroretinitis. Mercurial treatment had been without avail. The right eye was normal.

Examination.—I found extensive retinitis, with hemorrhages and large exudates over the entire fundus. There was also considerable swelling of the papilla. The veins were tortuous, thrombosed, broken in places, and there was no difficulty in determining that a venous thrombosis was at the bottom of the neuroretinitis. Syphilis was absolutely excluded. There was no reason to think that brain tumor or intracranial inflammation was the cause. Yet I felt that the salvation of the right eye, if possible at all, demanded discovery of the underlying cause of the thrombosis. In this connection I recalled Williams' work on toxemic vomiting of pregnancy.

Secondary results of the toxemia, which Williams claimed produced this condition, were found in the central nervous system, and I wondered if it were possible that, without the stage and symptoms of this sort of vomiting, serious nerve lesion might exist. I sent the patient to the University of Maryland Hospital for examination. Dr. Bull, of New York, to whom I submitted the history, agreed that this was the most promising line for investigation. While the urinary examinations were in progress, with the aid of Dr. Friedenwald, who saw the case with me, the literature was searched with the results already outlined.

The line of investigation may be best given by quoting from a paper on the Toxemic Vomiting of Pregnancy by Williams.[13] He first divides the subject into three varieties—neurotic, reflex and pernicious vomiting. The neurotic is often hysterical and when correctly diagnosticated can be controlled by suggestion and various simple means. Reflex vomiting is due to some malposition or other lesion connected with the pelvic viscera, and is subject to amelioration, when the toxic variety

9. Ann. d'Oculistique, 1904.
10. Bull. de la Soc. d'Obstet., 1904, 4, 180.
11. Des Nevrites Gravidiques Par. Thes., 1905.
12. Graefe-Saemisch, p. 184.
13. Am. Jour. Med. Sciences, September, 1906.

is excluded. But physical examination, to determine a reflex origin, chemical, to decide toxic origin, are needed before the neurotic variety can be accepted as the diagnosis. He says: "The urine, while diminished in amount as the result of scanty intake of fluids, does not contain albumin or casts until shortly before death, and may apparently present a normal amount of urea, as determined by the Doremus method, so that its casual examination gives no clue to the gravity of the condition. In reality, on the other hand, more detailed chemical examination at an early period reveals changes which are indicative of a profoundly altered metabolism. These consist of a decided decrease in the amount of nitrogen excreted as urea and a marked increase in the amount put out as ammonia. Accordingly, while the total nitrogen output may be practically normal, the percentage of nitrogen eliminated as ammonia is greatly increased, and this so-called ammonia coefficient, instead of being 4 or 5 per cent. as in normal pregnancy, may rise to 20, 30 or 40 per cent. . . . In my experience, if the latter (i. e., the ammonia coefficient) exceeds 10 per cent., the diagnosis of toxemic vomiting should be made, and the pregnancy immediately terminated, as there is no likelihood that the process can be checked by therapeutic measures, if it once leads to the production of the characteristic hepatic lesions."

The urine of my patient was subjected to such examination. The daily output was measured, tests for albumin, sugar and casts were made daily, and the urea and ammonia estimated quantitatively. At no time was there a trace of albumin, or sugar, and once the examiner, Dr. Adler, of the University staff, found, as he thought, a few hyaline casts. For the first three days the output was only 21, 19 and 23 ounces. Forced intake of water made very little alteration. The total urea output during these days, from February 22 to 29, varied from 4.7 to 5.5 grams, while the ammonia coefficient was persistently 14 to 15 per cent. In a word, urinalysis gave exactly what Williams had described as the diagnostic basis of pernicious vomiting. Yet there was very little nausea and no vomiting. But there was a destructive neuroretinitis, dependent on venous thrombosis, and thrombosis is a recognized result of pregnancy toxemia.

I had little hope of improving the left eye, but, after consultation with Dr. Friedenwald and Dr. L. M. Allen, I advised premature delivery as the best method of safeguarding the right eye. This was accomplished by Dr. Allen on February 29. Recovery was uneventful. Dr. Allen thought the fetus indicated a pregnancy of at least three and a half months, which throws some doubt on the supposed miscarriage in November.

There was on March 5 a urinary output of 80 ounces, with 13.75 grams of urea. Since then the daily output has not fallen below 93 ounces per day, with excretion of urea varying from 7 to 13 drams. This is still below normal, but three examinations of the ammonia coefficient show 8.3 per cent., 5.6 per cent. and 6.1 per cent. The patient has improved generally, and it is worthy of note that from having in the left eye no light perception or pupillary reaction before delivery, both are now present in certain parts of the field. Incidentally, I may add that when I dilated the left pupil for ophthalmoscopic direct examination I found at the foveal region numerous spots which I would not have hesitated to attribute to albuminuria, but at no time was it present.

CASE 5.—The patient was 22 years of age, in her second pregnancy. I saw her through the courtesy of Dr. Williams. She was admitted to Johns Hopkins Hospital February 5. The history shows persistent vomiting from February 5 to 17. Rectal nourishment was employed. Slight jaundice on February 16. On the 7th the ammonia coefficient was 36 per cent. On the 10th it was 20 per cent., at that time still more than double the amount on which a diagnosis of pernicious vomiting could be made. I do not know why Dr. Williams did not operate then, but he postponed doing so until the 17th. On the 16th the ammonia coefficient reached 40 per cent., and the next day the uterus was emptied. Ammonia output continued high, and the patient was intensely septic for several days. The ammonia output fell steadily, reaching 11 per cent. on March 9.

The day of first involvement of the eyes is not given, but on February 28 it is stated that the patient "could just barely count fingers when the eyes were worst." On March 2 Dr. R. L. Randolph found hemorrhagic neuroretinitis and large hemorrhages in both eyes, especially in the left eye. Exudates were scattered throughout the retinæ. On March 7 Dr. H. M. Thomas found definite symptoms of multiple neuritis, into which I need not enter for present purposes. Life was almost despaired of, but the woman has survived, and when I saw her on March 10 she seemed to have good promise of preserving both life and vision. The exudates were nearly absorbed, and so were the retinal hemorrhages. The nerves and retinæ showed no special abnormality, and there was good pupillary reaction. She saw objects in the yard and counted fingers at ten feet.

SUMMARY.

Apart from the various nervous symptoms incidental to pregnancy, which often affect the eye functions, there are four serious ocular manifestations seen more or less frequently during pregnancy or after parturition. These are: (1) The so-called uremic blindness, which is usually seen in connection with eclampsia. (2) What has always been termed the albuminuric retinitis of pregnancy. These are the most common complications. Rarer forms are (3) loss of central or peripheral vision, due, so far as symptoms point, to a retrobulbar neuritis, and (4), a form of neuroretinitis, not essentially suggestive of the albuminuric type, but showing numerous retinal exudates and hemorrhages. The clinical symptoms of these conditions are reviewed, and the classes are studied from the standpoint of recent pathological investigations in the obstetrical field. There is, in view of these investigations, doubt as to whether the term uremic should be applied to the blindness occurring in connection with puerperal eclampsia. The same is true regarding the renal origin of what is termed the albuminuric retinitis of pregnancy. There is good reason to think that both the renal and ocular complications are manifestations of the same process—a toxemia. The basis for this is set forth in the paper.

The third and fourth varieties of ocular complications of pregnancy are also, doubtless, the results of pregnancy toxemia, a toxic neuritis or toxic thrombosis probably being the active factor in causation.

DISCUSSION.

DR. CHARLES STEDMAN BULL, New York, said that modern pathology now taught that a number of ocular conditions, such as the amblyopia, occurring from excessive hemorrhage, or the sudden lighting up of latent syphilitic lesions, hitherto attributed to the pregnant state, were not due directly to pregnancy as a cause, but rather to the liability to disease induced by the lessening of the patient's powers of resistance. In certain other ocular conditions occasionally encountered in the pregnant woman, of serious prognostic significance both to vision and to life, Dr. Bull said that recent pathologic investigations made the relation of cause and effect practically certain. He believed it to be still an open question whether the so-called uremic amaurosis, or sudden and complete blindness without opthalmoscopic lesion, usually confined to eclamptic cases, was really uremic and actually dependent on derangement of organic kidney structure and function.

In the hemorrhages, and the exudative and degenerative changes in the retina occurring in connection with albuminuria, designated as the albuminuric retinitis of pregnancy, Dr. Bull said, the prognosis as to the vision and the life of the patient depended on the duration of gestation. By the induction of premature labor a better prognosis as to the ultimate vision might be given. With the forced termination of pregnancy, the inflammatory process in the retina would subside and good vision might be restored, provided the inflammatory process had not lasted long enough to cause the secondary degenerative changes in the retina. In the retinitis of pregnancy, he said, the loss of vision appeared slowly and occurred chiefly in primiparæ and in the latter half of pregnancy. There was

no contraction of the visual field, either for form or color. In subsequent pregnancies mild recurrences might be the rule.

Retinitis gravidarum, so-called, Dr. Bull said, appeared in the "pregnancy kidney" in from 1 to 20 per cent. of the cases. Unless labor were not induced, the majority of these patients, if they lived, would be permanently blind; and this persistent loss of vision, he said, pointed to the existence of some complication, such as detachment of the retina or atrophy of the optic nerve. Modern pathologists did not regard the kidney as the only pathway from the uterus to the eye. In fact, from the teachings of recent pathology, it seemed improbable that pregnancy could cause a real nephritis. Dr. Bull said that the kidney in pregnancy might be affected by lesions but they seemed to stop short of actual nephritis. It was a lesion of the renal epithelium which underwent a fatty degeneration. The "pregnancy kidney" should be regarded as a mild product of toxemia. The eclampsia, the nausea and vomiting, and the sudden partial or complete blindness, he said, must all be regarded as the results of an unknown toxic substance circulating in the blood, and not of the kidney lesion. It had been found that in these cases the liver was far more likely to be affected than the kidneys. Such a toxic substance might easily affect the optic centers also. He said that it was, therefore, incorrect and unscientific to speak of the albuminuric retinitis of pregnancy, for it did not exist unless the kidneys had previously showed the existence of interstitial nephritis.

So long as the blindness or retinitis of pregnancy was regarded as always associated with albuminuria and interstitial nephritis, doctors would run the risk of sacrificing eyes by not insisting on the induction of premature labor.

Dr. Bull added that if to regard a toxemia as the basis of all the lesions shown in the charts accompanying Dr. Woods' paper, Dr. Woods was correct in his explanation of them. For instance, when the chart showed a total obliteration of half of the field, the lesion was probably a thrombotic process. When the chart showed the preservation of a quadrant, the case was probably one of toxic neuritis of the optic nerve, certain fibers ultimately escaping, while others were destroyed.

DR. W. C. POSEY, Philadelphia, referred to a paper written by him in conjunction with Dr. John C. Hirst, of Philadelphia, entitled "The Importance of an Ocular Examination in Pregnant Women Manifesting Constitutional Signs of Toxemia," and published in THE JOURNAL March 14, 1908, 1, 865-868, which described certain ocular lesions which might arise in pregnancy as a consequence of a toxemia other than albuminuria. It was stated that this, a typical and often obscure form of toxemia, manifested itself in early pregnancy by pernicious vomiting, later in persistent headache, failing vision, muscæ volitantes, epigastric pain and restlessness. Repeated examinations of the urine for albumin being negative, Dr. Posey said the obstetrician was thrown off his guard, and viewed the symptoms as local and of no particular import until convulsions occurred. He cited a case in which the patient, a young primipara, developed dimness of vision in the fourteenth week of gestation, an aching fulness in the back of the head having been present some weeks previously. The ophthalmoscope revealed pronounced neuroretinitis in both eyes, the blood vessels being full and tortuous, and a few small rounded fluffy lymph extravasations were found in the region of the disc. There were no hemorrhages. The urine was free from albumin. Active eliminative treatment was essayed, but the general and local signs of toxemia disappeared only after abortion had been successfully induced.

Dr. Posey agreed with Dr. Woods that a toxemia other than that of albuminuria might provoke ocular changes during pregnancy. The importance of an ocular examination in all doubtful cases, he said, could not be overestimated, as the detection of changes in the eye-grounds, even without the presence of albumin in the urine, should lead to the adoption of a line of treatment which might be the means of saving the life of the patient.

DR. CASEY A. WOOD, Chicago, remarked that Dr. Woods had very properly passed lightly over one of the exceptionally rare sequelæ of pregnancy, namely, that form of metastatic panophthalmitis described by Hirschberg many years ago. Dr. Wood then read a report of a case of this septicemia which he had had. He added that the patient recovered as far as the general condition was concerned, and that the case differed from the great majority of cases published by Hirschberg and others, in the facts that the patient survived, and that the condition was bilateral.

DR. E. C. ELLETT, Memphis, Tenn., mentioned two cases bearing on some of the points made by Dr. Woods. He said that in November, 1907, he had been asked to see a patient aged 35, the mother of three children. In each of the two first pregnancies she had suffered with a neuritis of the branches of the brachial plexus and toothache. She had had several sound teeth extracted for relief of the latter symptoms, without effect. Relief followed delivery. She had been delivered of a third child two weeks before Dr. Ellett saw her. In the early months of this pregnancy she again suffered from brachial neuritis, which disappeared. The urine was last examined two weeks before confinement, was of normal specific gravity, and contained no albumin. On the day of the confinement she was seen at 8 o'clock by the physician, and complained of reduction of vision to perception of light. She was then in labor. The abdomen was unusually distended, so that no fetal outlines could be distinguished. Delivery at about 10 o'clock was followed by the discharge of a considerable quantity of dark blood and clots, but no active bleeding. For the first twenty-four hours there was absolute suppression of urine. In the next twenty-four hours not more than an ounce of urine was passed, and this was highly albuminous. After this the secretion increased, and the albumin lessened. Two weeks after confinement Dr. Ellett found vision practically normal, fields normal, eye-grounds normal except as to color, which was affected by the intense anemia from which the patient still suffered. The urine was normal in quantity and specific gravity and contained no albumin. It was not examined otherwise or microscopically at any time. In February, 1908, it was proposed to do a curettage for an endometritis. Chloroform was administered, and the patient died on the table from the anesthetic before the operation was begun.

The second patient was seen in 1902. Three months previous to Dr. Ellett's examination she complained of a sudden blurring of vision, worse in the left eye. Nine years previously, during a pregnancy and for six months after delivery, she had had uremic symptoms and impaired vision. She had recently been told by a very competent abdominal surgeon, who had seen her at intervals during this time, that she was well of her kidney trouble. She had postneuritic atrophy of both optic nerves, with slight impairment of central vision, and while under Dr. Ellett's observation the fields, at first normal, in two years became markedly hemoptic. The urinalysis showed specific gravity 1.003, no albumin, no casts; all the organs were normal. The patient took strychnin at Dr. Ellett's advice and with the consent of a colleague, almost all this time. In April, 1905, she saw Dr. Ellett's colleague on a Saturday, and he advised stopping the strychnin. She died suddenly the following Tuesday.

Dr. Ellett said that the evidences of toxemia were plain in both of these cases. In case one, the brachial neuritis could not so readily be explained on any other ground. In both cases he believed that an enfeebled and degenerate heart muscle must have resulted from the toxemia, and that this muscle suddenly gave way, in one case under the depressing influence of chloroform, and in the other when the accustomed stimulant was withdrawn.

DR. ARNOLD KNAPP, New York, said that some of Dr. Woods' cases corresponded to the group he had reported last year before the American Ophthalmological Society, in which there was an optic neuritic atrophy. This was associated with the symptoms now taken to mean toxemia. Further manifestations of this condition were shown in the analysis of the urine in which a diminution of the nitrogenous element, a disturbance of the nitrogen ratio, was found. Dr. Knapp remarked that the findings in the urine offered a more promising field than in the case on which Dr. de Schweinitz had just reported. As to the form, neuroretinitis with hemorrhages, it seemed to Dr. Knapp that the cases which he observed were associated with sepsis and that it was not possible to say that the condition was not due to the septic state, especially as,

according to the obstetricians, the toxemia predisposed to sepsis and the association of the two conditions seemed not unusual.

DR. HARRY FRIEDENWALD, Baltimore, said that he had had an opportunity of observing several patients who had recovered from eclampsia but were blind for some hours or days after delivery. In one of them the recovery of vision was so interesting that he thought it worthy of mention in this discussion. He remarked that it was generally assumed that the visual impairment in eclampsia was due to the toxic effects upon the cerebrum. In this patient the vision gradually returned, but there was at first a very marked central scotoma; it was the periphery of the field of vision in both eyes that recovered first, and only after several days did central vision improve and gradually return to normal. Dr. Friedenwald assumed that in this case the toxic effect was on the optic nerve and not on the cerebrum.

DR. ROBERT RANDOLPH, Baltimore, agreed that the proper course to pursue in the treatment of this class of cases was to induce premature labor where it was evident that the integrity of the retina is in danger. He felt that one would probably be justified in believing that the retinal changes of pregnancy were due to the toxemia of pregnancy and not to renal disease, if in the majority of cases of retinitis observed in pregnancy no albumin were found in the urine, but such, he said, was certainly not the case. Ten years ago he reported five cases of albuminuric retinitis in pregnancy, all with marked ophthalmoscopic pictures; all had albumin in the urine, and in two the urine was loaded with albumin. In going over the literature at that time Dr. Randolph noted that all who reported on cases of this character had found more or less albumin in the urine. Since then he had seen two cases of retinitis albuminurica of pregnancy and in both cases examination of the urine revealed albumin and casts. To his mind there was no retinal change so infallibly suggestive as the picture called albuminuric retinitis, with its flaky superficially situated specks, not necessarily arranged in the classic way in the macular region, but distributed indifferently about the retina and impressing the observer by their evidently superficial location. He said that his own anatomic observations placed these changes for the greater part in the nerve-fiber layer, the ganglion-cell layer and internal granular layer. The toxemia of pregnancy might be responsible for the eclampsia, but it should be remembered that this question of the pathogenesis of eclampsia had always been and still was a debatable one and, he said, according to Hirst at least three-fourths of eclampsia cases had albuminuria. Dr. Randolph remarked that recent observations had rather lessened the importance of renal disease as a cause of eclampsia, yet in by far the majority of cases of eclampsia there was demonstrable proof of renal disease. This being the case one would have no more right to deny the agency of the kidney trouble in causing the retinitis than to deny the origin of the retinitis in a non-pregnant individual who presented the usual signs and symptoms of a chronic interstitial nephritis. Dr. Randolph felt that he hardly needed to call attention to the necessity of making repeated examinations of the urine before deciding to accept or reject the diagnosis of renal retinitis. Lucien Howe years ago reported a case where the typical picture of albuminuric retinitis was seen and it was not until three months later that albumin and casts were found in the urine. This would suggest the possibility of this form of retinitis being occasionally a prealbuminuric sign of renal disease.

Dr. Randolph said that a month ago he had seen a woman whose right retina was covered with a number of soft, white, superficially located specks, and he had felt almost instinctively that he was dealing with a kidney trouble. Yet examination of the urine at that time failed to reveal either albumin or casts. Two weeks ago the patient's family physician, to whom Dr. Randolph referred her, reported that nothing abnormal had been disclosed by repeated examinations till the last three, each of which showed casts and albumin, which, with a high blood pressure, suggested the presence of a contracted kidney. Dr. Randolph remarked that Dr. Woods had called attention to the fact that Dr. James Bordley, Jr., had observed the characteristic feature of albuminuric retinitis in sixteen cases of brain tumor in which no albumin was found in the urine. He said that the occurrence of this condition was well known, but care should be exercised in drawing conclusions until the possible renal involvement had been completely excluded. Dr. Randolph had recently examined two cases of brain tumor in the Johns Hopkins Hospital in both of which there were choked discs and the so-called albuminuric retinitis, but in both of these cases casts and albumin were found in the urine.

DR. MARCUS FEINGOLD, New Orleans, said that if this classification of retinitis in pregnancy as being not the effect of the albuminuria but of the toxemia were accepted as correct, then the question would always arise in the mind of the practitioner, what to do when confronted with a case of retinitis in a patient never before examined? Could it be called a case of retinitis due only to the toxemia or a case of retinitis in a woman who had previously had nephritis? The question, he said, was of great importance from the standpoint of therapeutics; in a case due to toxemia it was the physician's duty to interrupt pregnancy at once so as to stop the toxemia; in a case due to albuminuria proper, the indication was not as plain, he believed, because obstetricians as a rule would not perform an abortion unless the nephritis produced eclamptic symptoms. Dr. Feingold believed that there was justification for the more radical measures in every case. He cited the case of a patient who during pregnancy became suddenly blind. She consulted Dr. Feingold some months after confinement and then presented a typical postneuritic atrophy with remnants of hemorrhage in the eyes. Whether this was a case of albuminuric retinitis, or retinitis in pregnancy from toxemia was difficult to decide. Dr. Feingold advised in such a case the performance of an abortion. Another patient consulted Dr. Feingold for headaches. He found an error of refraction but also a condition of retinitis of pregnancy. He advised abortion; it was performed, and the patient recovered.

DR. HIRAM WOODS, Baltimore, replied to the problem outlined by the two last speakers, namely, how the diagnosis of toxic or renal origin was to be made in a case of exudative retinitis in pregnancy, or in a case of neuroretinitis without the spots thought characteristic of renal origin by saying that it was to be made by urinalysis along the lines suggested in Dr. de Schweinitz' paper of the same day, and illustrated in two of the cases narrated in Dr. Woods' own paper. If the contention of Williams and other obstetricians was correct—that liver changes were responsible for a general toxemia capable of affecting the kidneys and nervous system alike, that both were direct results of the toxic substance, and that the kidneys were not the pathway to the nervous system—then Dr. Woods said the diagnosis of this toxemia became a matter of grave importance. Further, if the contention was correct that the urea output was so altered as to produce an excess of elimination of urea in the form of ammonia—in other words, an increase in the ammonia coefficient—then there was a definite chemical line of investigation.

Dr. Randolph had said that in the cases of eclamptic blindness which had come under his observation, there had usually been albuminuria. The point Dr. Woods wished to make was that, even so, physicians were not justified in attributing this blindness solely to uremic poisoning as the text-books did. This form of blindness, he said, was observed in the uremic convulsions of chronic nephritis, and accompanied the usual symptoms of defective elimination. It was, moreover, a serious symptom in the course of chronic kidney lesion; but when occurring in connection with puerperal convulsions, it was but one part of a symptom-complex of which convulsions were another part. Owing to this frequent association with albuminuria, the whole eclamptic phenomenon had been laid at the door of albuminuria. Clinical observations, however, had often shown the absence of albuminuria, and the subsequent course of the puerperal cases usually negatived the hypothesis of renal origin; at least the course was usually different from that in the true nephritic. Again, observations at autopsy showed insignificant renal changes often, and more constant characteristic liver lesions. These facts had led Edgar and other obstetricians

away from the renal origin of eclampsia, and made them attribute the whole phenomenon to some poison of unknown nature, but, according to Edgar, not uremic. Why, then, Dr. Woods asked, should ophthalmologists persist in picking out one symptom of this phenomenon as certainly uremic, especially when the obstetricians had taught that albuminuria could also be a secondary result of toxemia?

THE RELATION OF OCULAR AND CARDIOVASCULAR DISEASE.*

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This subject, I am sure, is not new to you, but since we are learning more about it every day, a few of my personal ideas and findings may prove of interest. The estimation of blood pressure has brought about a more comprehensive knowledge of cardiovascular disease. The remote disturbances which follow this important condition, and the etiologic factors which gradually lead up to it, are now receiving much attention. It is a well-recognized fact that a man may be on "his last legs," so to speak, from cardiovascular changes, and yet feel no serious bodily discomfort. He may have, therefore, no urgent reason for consulting his physician, but may have reason to consult his oculist, and we should constantly be on the lookout for ocular evidences of these vascular changes.

The recognition of these early changes in the retinal circulation may enable us to give many years of life to a considerable number of our patients. The "optometrist" will always be incompetent to recognize these danger signals in the eye, and it is one more urgent reason why he should not be licensed to practice his would-be profession. While the ophthalmologist keeps pace with the body of the medical profession in its new discoveries, the technical knowledge and the equipment required to make a thorough examination of the urine, the blood, and an all-round physical examination of the individual goes beyond his province. He has served a most useful purpose, however, in having recognized the ocular signs which warrant such a physical examination, and has done his duty by seeing that the patient had such an examination made.

It is no disparagement to the general practitioner to say that he also is incompetent to make this examination. It has been my policy to refer such a patient to some one capable of making this all-round examination, and then send him to his physician with the full report of our findings. I must confess that my efforts have been several times thwarted by the family physician making light of the entire matter. He thumps the patient a little, listens to his heart through a few intervening thicknesses of clothing and directs him to "go about his business." A dilated heart can only be mapped out by the most painstaking deep percussion. The presence of a low blood pressure, polycythemia, and dilated, tortuous retinal veins, uricacidemia and indicanuria all point to a clear diagnosis of general venous stasis, which tends not only to shorten life, but also opens the way to many physical mishaps before the end comes. The cases I am about to report show how these mishaps may affect the eyes.

I believe it is generally accepted that high arterial pressure is a common cause of renal and arterial degeneration. It has been my observation that in chronic interstitial nephritis, with high blood pressure, where the retina is involved, the reduction of the blood pressure is all important, and that thereby several years can be added to the life of the individual (Cases 11, 12 and 13). Case 11 shows not only how life was prolonged when the patient was on the verge of uremic convulsions, but how useful vision was preserved until her death.

I have been especially impressed with the frequency with which general venous stasis was found present in many cases of degenerative ocular changes (Cases 1, 2, 3, 4, 5, 6, 7 and 9). Several of these patients I never saw again; consequently I am unable to report on the results of treatment, but they serve to show the relationship, as mentioned. If the vascular changes were not instrumental in causation, then the etiology was certainly indeterminable. At our altitude of one mile above sea level we undoubtedly see more cases of heart dilatation and venous stasis than do those living at lower levels. How much greater the relative proportion is I do not know.

It is now a recognized fact that four-fifths of the heart lesions are muscular and that one-fifth are valvular. The influence which impaired circulation, caused from a weakened heart, has on the economy is now being studied extensively. The ophthalmologist is in a position to see some of the very direct results of muscular heart lesions; he should, therefore, be thoroughly alive to the importance of this subject.

CASE 1.—*Retinal Hemorrhage, Due to Dilated Heart, General Venous Stasis and Polycythemia.*—Mrs. J. G. M., age 37. Aug. 8, 1907. Has been feeling well physically, with the exception of some shortness of breath on exertion. Two months ago she noticed a blurring of vision in the left eye, which has undergone no improvement.

Status Præsens.—The retina of O. S. is highly engorged. The veins are tortuous and greatly distended. Flame-like hemorrhages are present everywhere along the veins. The nerve head is red, outlines indistinct and somewhat swollen above.

The appearance of the fundus of O. D. is practically normal. The veins are somewhat larger than they should be. O. D. V.= 20/20; O. S. V. = 2/200. She was referred to Dr. E. C. Hill for physical examination, who reports as follows: Pulse, 92, sitting; 110, standing. Heart, one-half inch to left of nipple and one-half inch to right of sternum. Blood pressure, 105; 107 after exertion. Hemoglobin, 95 per cent. Red blood cells, 7,800,000. Urine, 1,027 c.c. in twenty-four hours. With the exception of a slight excess of indican and uric acid it is normal.

Treatment.—Fifteen drops tincture of strophanthus before meals, and 1/30 gr. strychnia after meals. Diet: Not more than two and one-half pints of fluid daily. Meat once daily. No coarse vegetables, such as cabbage, corn, etc. Potatoes and bread restricted. Fruit and green vegetables freely. Generally speaking, her diet is to be very simple and she must eat sparingly. Results two months later: O. S. V. = 20/30. Retinal hemorrhages all absorbed. Veins more normal in size and appearance; nerve head a little muddy. Dr. Hill finds her heart normal in size. Blood pressure, 108. This lady lives in Ohio and was seen by me while on a visit to Denver, consequently our altitude had nothing to do with the production of her venous stasis.

CASE 2.—*Optic Neuritis, Associated with Exophthalmic Goiter. Dilated Heart, General Venous Stasis and Autoinfection.*—Mrs. C. H., age 31, November, 1906. History of enlargement of the thyroid gland with some exophthalmic symptoms. The enlargement has about disappeared under electropuncture. Eyes have been paining her for two years. Has had a number of transient blind spells. Vision became per-

* Read in the Section on Ophthalmology of the American Medical Association, at the Fifty-ninth Annual Session, held at Chicago, June, 1908.

manently affected eight months ago. It has gradually been growing worse. Has not been able to read for three months.

Status Præsens.—O. D. V. = fingers at four feet. O. S. V. = fingers at six inches. Left pupil larger than right, reactions for light and accommodation slow. Fields: Not enough vision to take left field; the right is contracted equally in all directions to the 5 degree line. With the ophthalmoscope, the nerve head of O. D. is swollen 5 D. No retinitis. The left nerve is almost completely atrophic. She was sent to Dr. Hill for physical examination, who reports as follows: Heart dilated to one and one-eighth inches beyond sternum and two inches beyond nipple. Blood pressure, 129. Pulse, 108. Urine, great excess of uric acid and indican. Red blood cells, 4,480,000. Patient disappeared.

CASE 3.—*Retinal Hemorrhage, Associated with Polycythemia and Autointoxication.*—Mr. B. D. S., age 44, Aug. 13, 1903. Very full-blooded, florid-looking man, who is apparently somewhat over weight. Claims to have always enjoyed good health. Is a heavy eater, but has no other dissipations. About six weeks ago noticed that vision of O. D. was poor; no improvement since.

Status Præsens.—O. D. V. = 3/40. O. S. V. = 5/6. The entire macular region of the right eye presents the appearance of numerous hemorrhages, with chorioiditis. The veins are very large and tortuous, and the nerve head is red. Sent him to Dr. E. C. Hill for physical examination, who reports that his heart is about normal, but that his red blood cell count is 8,200,000; that he is passing only about one-half the normal amount of urine in twenty-four hours, which contains a considerable excess of indican, and three times the normal amount of earthy phosphates. He advises that he drink twice as much water as he is now drinking, and that his diet be of the simplest form; that it be largely vegetable and that he be allowed only one full meal a day. He was given 10 gr. iodid of potassium, t. i. d., 1/32 gr. biniodid of mercury, t. i. d. In three months time his vision had improved to 5/15. The fundus shows a few scars. No new hemorrhages. I saw him last in February, 1906. He had O. D. V., 20/30. Almost no retinal signs of his former trouble. I had Dr. James Rae Arneill examine him physically for me. He found his blood pressure to be 135; hemoglobin, 105 per cent.; urine normal. A letter received from him a few days ago says the eye still remains well.

CASE 4.—*Retinal Hemorrhage, Associated with a Weak Heart and General Venous Stasis.*—Dr. J. M., age 53, Aug. 21, 1907. Has noticed a dimness of vision in lower field of right eye for ten days. He has been actively engaged in country practice for many years. Has no dissipations, unless it be in his eating. He is a hearty, rugged looking man.

Status Præsens.—The upper temporal quadrant of retina of O. D. is covered with flame-shaped hemorrhages. The veins are very full and tortuous. Nerve head congested. He was referred to Dr. E. C. Hill for physical examination, who reports as follows: Blood pressure, 99 sitting, and 107 after exertion; hemoglobin 90 per cent., red blood cell count, 5,350,000; heart is not dilated but degenerated and weak; urine 26 ounces in twenty-four hours; uric acid, one-third above normal daily maximum; no excess of indican.

Diagnosis.—Passive congestion.

Treatment.—Strychnia and hydrastinin hydrochlorid, and correction of his diet. Dec. 24, 1907, he reported that the vision in the lower nasal field is much improved. Is feeling well. Thinks blood pressure is higher than it was.

CASE 5.—*Recurring Retinal Hemorrhage, Associated with Dilated Heart, General Venous Stasis and Autointoxication.*—F. S. T., age 26, Sept. 26, 1905. Occupation, farm hand. Has always enjoyed good health. For the last three weeks he has seen a curtain hanging in front of left eye.

Status Præsens.—O. D. V. = 5/5. O. S. V. = 5/27. With the ophthalmoscope a membrane is seen lying in the anterior portion of the vitreous, which is fixed; also large floating pieces of membrane. The appearances are of a previous vitreous hemorrhage which is being absorbed. The fundus can not be seen. Sent him to Dr. E. C. Hill for physical examination, who reports: Blood tension, 165; heart normal; pulse, 88 sitting, 100 standing; hemoglobin, 90 per cent. The urine shows considerable excess of indican, uric acid and earthy phosphates.

It was decided to reduce tension somewhat by the use of a very simple diet, also to correct intestinal fermentation by giving him 10 grains of sulphocarbolate of sodium, t. i. d., and 3 grains of calomel once a week. A month later the vitreous was found almost clear and V. = 5/9. No fundus lesion could be found. He was told to continue treatment for another month and report. He was not seen again for nine months, when he came because of another vitreous hemorrhage, which had occurred six weeks previously. I found his vitreous full of floating membrane, and a retinal spot could dimly be seen below the macula. Dr. Hill went over him again and found his blood tension 115; heart, much dilated; no indicanuria. He was given 10 drops each of tincture of strophanthus and nux vomica, t. i. d.

Two months later Dr. Hill found his heart still somewhat dilated and had him continue the heart tonics. I found a little floating membrane in the vitreous, and that the spot below the macula was becoming atrophic. I did not see him again until two months later, when he came in with a corneal ulcer caused by the diplobacillus, which quickly healed under zinc. The vitreous is now perfectly clear and O. S. V. is 20/20. There are three spots of atrophic retina to be seen, a small spot just to temporal side of disc, a large one below the macula and a third some distance below the disc.

Four months later he came in saying that the right eye had been blurring for ten days. O. D. V. = 20/70; O. S. V. = 20/20. The vitreous of right eye contained floating membrane and no fundus details could be made out. Dr. Hill found the heart so dilated that the heart border was one and one-quarter inches to the right of the sternum and one-half inch to the left of the nipple in the sixth interspace. Pulse, 92 sitting, 105 standing. Blood pressure, 132; hemoglobin, 100 per cent. Marked indicanuria. In four days the vitreous had so cleared that a retinal spot could be seen on the nasal side of the disc. He was seen again three months later, when vision in each eye was found to be normal. The blood vessels of the retina have not the appearance of sclerosis. Dr. Hill found the blood pressure 145 mm., and heart almost normal in size.

Three months later he had another attack in the left eye. The vitreous was muddy, but there were no large pieces of floating membrane. Dr. Hill found his heart again badly dilated with a blood pressure of 115. This case illustrates the relation in a young man between vitreous hemorrhage and venous stasis, and how between attacks of the latter his vascular condition was comparatively normal.

CASE 6.—*Asthenopia, Associated with Retinal Venous Congestion, Heart Dilatation and General Venous Stasis.*—Mrs. M. A. H., age 35, Jan. 9, 1906. Complained of eyes watering and tiring for near work. Thinks vision is poor.

Status Præsens.—The vision of each eye is 5/7.5, with —.50 cyl., ax. 180°. Both nerve heads are congested, and the medium-sized veins are tortuous. I sent her to Dr. Hill for physical examination, who reports as follows: Amount of urine passed in twenty-four hours is 8 ounces, which contains a trace of albumin. No excess of indican nor uric acid. No casts. Blood pressure, 121. Heart very much dilated and leaking all around. The right border one inch to right of sternum. Hemoglobin, 95 per cent. Diagnosis, general venous stasis.

She was referred to her family physician for treatment. Results, unknown.

CASE 7.—*Conjunctival Edema, Associated with Heart Dilatation, General Venous Stasis and Autointoxication.*—Mrs. F. H. B., age 52, February, 1906. Eyes have been inflamed and in about the present condition for three months. Has worn glasses for three years. Has always enjoyed good health.

Status Præsens.—The eyes look very red and watery. The ocular conjunctiva is edematous and rolls up in front of the lid margins when winking. The palpebral conjunctiva does not appear to be affected. Sent her to Dr. Hill for physical examination and for bacteriologic examination of the ocular secretions, who reports as follows: A smear of the ocular secretions shows fatty degeneration of the epithelial cells, some ordinary staphylococci and proteus bacilli, but no diplobacilli. Pulse, 87 sitting, 90 standing. Heart, one and three-eighths

inches beyond left nipple and one-half inch to the right of the sternum; the apical sounds were somewhat weak. Blood pressure, 121. Red cells numbered 6,200,000; hemoglobin about 95 per cent.; no excess of leucocytes. The urine shows an excess of uric acid and indican. He believes her eye trouble is partly due to uricacidemia, but mainly to stagnant circulation at this altitude. The treatment prescribed was strophanthus and nux vomica. Jan. 4, 1908, a letter from her stated that her eyes are better.

CASE 8.—*Asthenopia, Associated with Heart Dilatation, General Venous Stasis.*—Mr. G. M., age 42, April, 1907. Has been having so much pain in eyes and back of head that he has been compelled to stop work. His refraction was estimated to be +1.50 W — 50 cyl., in each eye, with 20/20 vision. These glasses were ordered. In the macular region of each eye there were seen shimmering lines and irregular splotches of a yellowish color. The veins were greatly dilated and the arteries small. He obtained no relief from wearing the glasses. He was referred to Dr. E. C. Hill for physical examination, who found: Blood pressure, 111; right side of heart greatly dilated. Hemoglobin over 100 per cent. He was placed on appropriate heart tonics, and in the course of two weeks time his headache was relieved and he was able to return to work.

CASE 9.—*Episcleritis, Associated with Dilated Heart, General Venous Stasis and Autointoxication.*—Mrs. R. C. D., age 38, March, 1907. Her left eye has been subject to attacks of inflammation on the temporal side of the cornea. The eye becomes intensely injected over this portion of the globe, and is very tender and painful. The attack subsides in a few days and the eye becomes almost white; another attack follows in about a week or ten days. She was referred to Dr. Hill for physical examination who reports that she has a dilated heart, which is extended three-eighths of an inch to left of nipple and one-half of an inch to the right of the sternum. Pulse, 95 sitting, 106 standing. Blood pressure, 102. The urine shows a large excess of indican and uric acid. She was placed on strophanthus and sulphocarbolate of sodium and simple diet.

CASE 10.—*Retinal Hemorrhage, Associated with High Blood Pressure.*—Mrs. Henry W., age 72, Aug. 19, 1907. General habit, plethoric. Has no complaint to make physically. For three months she had had two spots before left eye and has been aware of a gradual failure of vision.

Status Præsens.—O. D. V. = 20/20 W + 2.00. O. S. V. = 20/70 W + 1.75. With ophthalmoscope numerous hemorrhages are seen scattered throughout the retina of left eye. There are no hemorrhages in the right eye, but the blood vessels show strong evidences of sclerosis. She was referred to Dr. F. W. Kenney for physical examination, who reports as follows: Blood pressure, 240; heart normal; no kidney disease. This patient is still under observation. Her blood tension is still high.

CASE 11.—*Neuroretinitis, Associated with Chronic Interstitial Nephritis and High Arterial Tension.*—Mrs. M. B., age 45, Jan. 19, 1907. Has been suffering of late with severe diffused pain in head. Eyes so sore she can scarcely move them. Has been aware of a central blind spot in right eye for several days.

Status Præsens.—O. D. V. = 20/40; not improved. O. S. V. = 20/20; not improved. With the ophthalmoscope a typical picture of albuminuric neuroretinitis, with hemorrhage, is seen in each eye. The condition was more advanced in her right eye. She was referred to Dr. E. C. Hill for physical examination, who found she was on the verge of uremic convulsions from chronic interstitial nephritis. Her blood pressure was 240. Active measures were taken to reduce the high blood pressure. When it came down to 200, her headache stopped. It was gradually brought down to 185 and 190. The neuroretinitis gradually improved. In two months time the retinal hemorrhages were all absorbed, but the striæ and spots of retinal degeneration, and the opaque sclerosed blood vessels were more marked than ever. Four months later there was scarcely a trace remaining of the retinal degeneration. Vision was 20/20 in each eye, with full fields. She died just a year after my first examination, and enjoyed a fair degree of comfort with good vision until the end.

CASE 12.—*Neuroretinitis, Associated with Chronic Interstitial Nephritis and High Arterial Tension.*—Mrs. J. I. G. age 50, March 27, 1905. Referred to me by an optician to have her eyes examined for glasses. Has little complaint to make about eyes or her physical condition.

Status Præsens.—O. D. V. = 5/9:5/6 W + 75. O. S. = 1/200; not improved. With the ophthalmoscope a typical picture of albuminuric neuroretinitis was seen in each eye, which was more advanced in the left eye. Numerous retinal hemorrhages in both. She was referred to Dr. James Rae Arneill for physical examination, who reports that she has a dilated leaking heart, blood tension 260. Urine shows albumin and hyaline casts. I never saw this patient again. She felt well and could not believe that she had chronic Bright's disease. Much could have been done to prolong her life had she been willing to follow directions. As it was, I learned that she died after a few months, and that she became almost blind before her death.

CASE 13.—*Retinal Hemorrhage, Hemorrhagic Glaucoma and Optic Nerve Atrophy, Associated with Chronic Interstitial Nephritis and High Arterial Tension.*—Mr. H. L., age 60, Nov. 16, 1903. Vision has been blurred for ten days. Has always enjoyed good health. Has been a dissipated man as regards alcohol and tobacco. Has not drunk any during recent years.

Status Præsens.—O. D. V. = 5/15. O. S. V. = 5/15. The field of O. D. is contracted temporally to the 5 degree line, the left is normal. The ophthalmoscope shows marked evidences of sclerosis of the retinal vessels in each eye. The disc of O. D. is cupped. In O. S. the nerve head is congested, the adjacent retina edematous, the veins engorged and tortuous, and numerous retinal hemorrhages occupy the inferior nasal quadrant. He was referred to Dr. Hill for physical examination, who reported as follows: Albumin, 1 2/5 per cent. by volume; hyaline, coarsely granular and disintegrated blood casts. Blood tension, 240. He was placed on a strict diet, and was given 3 grains sodium nitrite, t. i. d., and a pill composed of euonymus, aloes and belladonna.

Jan. 18, 1904.—Great loss of vision. O. D. = Fingers at two feet. O. S. = Hand movements. O. S. was inflamed. T + 1. Vitreous so hazy that fundus could not be seen. Iris sluggish and off color. Dr. Hill found the albumin in urine reduced to 1⅛ per cent. by volume, and his blood tension was 215. The left eye went from bad to worse.

Diagnosis.—Hemorrhagic glaucoma. Enucleation. The vision of his right eye was now so poor that he could not see to get about alone. This was due to a scotoma which encroached on central vision and extended below temporally and nasally, about 20 degrees in each direction. He has been using eserin in oil in this eye, but I can not see that it has been of any service. It is doubtful if there has been, at any time, any increase of tension. For some months this eye remained about the same, and then the central scotoma increased until it occupied the entire temporal field. He has had numerous hemorrhages, but they have not caused hemorrhagic glaucoma as they did with his left eye. I saw him last in July, 1907. He had perception of light only, and numerous retinal hemorrhages were present. Dr. Hill estimated his blood tension several times, and found it to range from 135 to 145. He had a small amount of albumin in his urine. This patient is alive to-day because of the reduction of his blood pressure. His ocular mishaps were most unfortunate, and had he been seen a year or so sooner they might have been prevented.

The above cases serve to show how important are the ocular changes in pointing to the existence of cardiovascular disease. A greater number would needlessly prolong this paper.

DISCUSSION.

DR. LEWIS H. TAYLOR, Wilkesbarre, Pa., said that the profession was coming to recognize more and more the important fact that in certain cases treatment must be directed not to the eye but to the general system. It was hard for the oculist in the face of such conditions to say frankly: "This is a serious eye trouble but I am not competent to treat it." He need not say this if he were physician as well as oculist. Moreover, Dr. Taylor said it was not always convenient and

sometimes not possible to refer patients to expert heart specialists.

Dr. Taylor said that he had had more cases of vascular trouble ending in retinal hemorrhage in the past two years, than ever before in a corresponding period in his whole practice. He related part of the history of a case of retinal hemorrhage. The patient was a strong, hearty man, aged 44 in 1884. He was then fitted with glasses and again twelve years later. In this year he had his first hemorrhage. Two years later the vision rose to 20/XXX some in XX in the patient's right eye, and this was now his better eye. Two years later another attack came and vision of the right eye fell to mere perception of waving hand. Subsequent hemorrhages occurred, ending in hemorrhagic glaucoma for which condition Dr. Taylor enucleated the right eye. The patient's remaining eye had had retinal hemorrhages some years before and was for some time the poorer eye. The patient had always had a full pulse, but soft. His diet was regulated. Fresh hemorrhages, however, occurred in the remaining eye at intervals of two and one years and a severe one in 1907. The patient had been treated by local and general blood-letting, regulation of life, and various medicines. Following the hemorrhage in the spring of 1907, he was practically blind through the greater part of the summer, but rallied and recovered a considerable amount of vision so that he was able to go about alone, but was never able to read. In February, 1908, a day of considerable excitement brought on dimness of the eye, but no hemorrhage was visible. The patient was at once put to bed and placed on treatment to lower arterial tension and on March 2 twenty-four ounces of blood were taken from the arm. The hemorrhages increased with great intensity, causing great pain and high tension which eserin, pilocarpin and dionin could not relieve. The anterior chamber was filled with blood and an iridectomy or sclerotomy was out of the question. Even the skin around the eye was affected with hemorrhages, extending down to the neck. The patient suffered along for a month longer being kept part of the time under the influence of morphia, having at times some improvement to be followed by subsequent hemorrhages. He finally agreed to an enucleation, but in the morning of the day fixed for operation the ball ruptured. After enucleation the hemorrhages continued and were not forcibly checked because of the pain, and because Dr. Taylor considered that it would be better for the patient's head to allow the hemorrhage from the orbit to continue. Oozing of blood, at times free, continued for nearly three weeks, checked finally by adrenalin externally and internally. Dr. Taylor said that the patient had now fully recovered his general health and rode out daily. This patient had been seen by Drs. Knapp, Bull, Risley and de Schweinitz and all had predicted apoplexy as a possibility. Dr. Taylor thought it surprising that the patient had not had a rupture of a blood vessel in the brain before this.

Dr. George E. de Schweinitz, Philadelphia, said that Dr. Black's insistence on the point that early recognition of angiosclerotic changes might enable physicians to give many years of life to a considerable number of patients deserved to be emphasized. He said that it should also be remembered that even more important than the grosser changes were the early signs of cardiovascular disease, particularly the early signs of general arteriosclerosis, such as lesions of the arterial walls, alternate contractions and dilatations of the veins, indentation of veins by stiffened arteries, and later hemorrhagic extravasations, perivasculitis and silver-wire arteries. Dr. de Schweinitz called attention to still earlier indications, the curious corkscrew appearance of certain arterial twigs, notably those skirting the macula, the crinkled retinal vessels of Alleman's phraseology, the flattening of a vein in contact with an artery, resembling somewhat the appearance of a diminutive strap laid across a solid tube, most frequently evident in the inferior temporal retinal vessels, and the peculiar appearance of the nerve head; with its slightly dull red appearance, differing from a frank congestion precisely as the unhealthy flush of a cheek differs from the brighter color of the normal blush.

Dr. de Schweinitz said that the signs of angiosclerosis looked for by the general clinician—the condition of the pulse, the character of the heart sounds, particularly that of the first sound at the apex and of the second sound at the aortic area, the increased tidal wave on the sphygmogram, and the elevation of tension recorded by the sphygmomanometer—might result from numerous and varied conditions of the system, organic and nervous in origin, and not necessarily connected with arteriosclerosis. The ophthalmoscopic signs, suggestive or pathognomonic—in their earliest or in their latest stages—he said were certain evidences of local angiosclerosis and frequently of persisting high arterial tension, either of general arteriosclerosis or of its manifestations in special organs, and therefore ophthalmoscopic examination was one of the most ready clinical means for the early detection of important arterial changes. Dr. de Schweinitz believed the ophthalmoscope equal in value if not superior to any of the well-recognized methods of the detection of such a condition; and he thought its findings, unlike those of the sphygmogram and even the sphygmomanometer, diagnostic, if positive. No one, he added, was prepared to say that in the absence of ophthalmoscopic changes there must be absence also of arterial degenerative changes, but in the presence of the former, other things being equal, and local changes in the eye being excluded, the findings, if positive, were diagnostic.

Dr. Charles H. Williams, Boston, wished to call attention to the necessity of a very careful ophthalmoscopic examination of these cases. He said that he had a case recently in which the pupils were small and there was general haziness of the vitreous so that it was very difficult to get a good view of the fundus. Under cocain dilatation, however, he found abundant hemorrhages in the retina and a large number of changes in the retinal vessels, some being obliterated and some reduced to small white lines. This patient was about to sail for Europe. Dr. Williams advised strongly against it and wrote a letter to the patient's family physician. He received an answer taking him to task for having frightened the patient.

Dr. Edward Jackson, Denver, illustrated the breadth of this subject and its importance to the ophthalmologist by citing the case of a man, aged 58, whose sight had been growing worse for three months, and who came with vision reduced to 4/22 and 4/12. Ophthalmoscopy showed dilatation of the veins, which were narrowed at the crossings of the arteries. Color-perception was markedly interfered with, but there was still fair perception for yellow and blue near the center of the field of vision. This patient had a blood pressure of 140 mm. Considering the condition of his veins Dr. Jackson inferred that the pressure though not absolutely low, was temporarily low for that particular individual. The patient was referred to Dr. Hill, who found marked dilatation of the heart. Here, Dr. Jackson said, was the practical point: that man was put on restricted diet and proper medicinal treatment, and in a week had improved decidedly. At the end of three months his vision was 4/5. His condition continued good until a year later when he died of some cerebral vascular lesion. Dr. Jackson said that he had seen several cases in which good vision was restored by paying attention to the temporary failure of circulation.

Dr. A. R. Baker, Cleveland, spoke of the importance to the ophthalmologist of the sphygmomanometer. Dr. Baker said that for a great many years he was able to recognize the condition of the fundus in which he had a suspicion of high blood tension. Of course, when there were hemorrhages he could speak positively, but when he could simply say that there was a little tortuosity of the vessels and would urge on the patient the importance of changing his method of living, his advice was usually unheeded. Such patients often congratulated themselves on being particularly well; one, a doctor, slapped himself, and said, "There is not a healthier doctor in Cleveland." He died within the year. When this apparatus was applied to the patient's arm, and the patient was shown his definite high tension and it was explained to him that the life insurance companies would not take him as a risk, Dr. Baker said this offered a definite fact to emphasize the therapeutic measures. Dr. Baker used to try to refer these patients back to the general practitioner, but found that most of them had not such apparatus and didn't know how to use it when loaned to them. Dr. Baker

said that the instrument should be used every day, and that it was not necessary to refer patients to the general practitioner for its application.

DR. G. F. KEIPER, Lafayette, Ind., said that he had found a great deal of angiosclerosis in the young as well as the old and had come to believe that the instrument for measuring blood pressure was just as essential as the ophthalmoscope. Dr. Keiper thought the contention of Janeway correct, namely, that instead of the narrow cuff the broad cuff should be used, and that observations should be based on the use of the broad cuff with the mercury manometer. He added that the kind of instrument used should be recorded because there was bound to be variation of any reading of the Riva-Rocci instrument in comparison with the others.

DR. MELVILLE BLACK wished to emphasize the importance of determining the blood pressure by actual tests. He said that it was impossible to determine it by the appearance of the retinal circulation. High blood pressure or low blood pressure might cause the same appearance in the retina and one should not be positive in the belief that it was always high blood pressure; it might be as Dr. Jackson had said, low for that individual.

HEMORRHAGE INTO THE VENTRICLES.

ITS RELATION TO CONVULSIONS AND RIGIDITY IN APOPLECTIFORM HEMIPLEGIA.*

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The question to what extent the upper motor neurons are initiative in their function must of necessity be speculative. But since the advent of the theory of definite cerebral localization for well-ascertained function, since the increase of our knowledge of the association tracts and their importance psychologically, the concept of the upper motor neuron as a free agent in initiating its own stimulus becomes more and more untenable. To-day it would seem that the normal motor impulses from the Rolandic region are set in motion from impulses from other parts of the brain transmitted through association tracts.

Now muscular movement—for example, of the right side of the body, face, arm, trunk and leg—may be volitional, in which case it can be considered reflex to psychic stimulation. It may be due to the local action of some circulating poison, either stimulating the perikaryon or its neurons directly, or rendering them so hypersensitive to afferent impulses that, whereas normally there would be no reflex action, in the hyperexcitable condition there is a discharge of motor impulse: this is probably the case in uremia. Intracranial pressure, unless very gradual, is able by direct irritation to cause a motor discharge; and intracranial pressure as well as irritative lesions acting on the right cerebellar lobe can cause stimulation of the motor neurons of the left motor cortex, as in Weber's cases.[1] Electricity applied to the motor cortex or the internal capsule is also capable of causing motor functional activity. Lastly, and from the standpoint of this work of most importance, stimulation or irritation of the high sensory system, either of their perikaryons in the optic thalamus or other basal ganglia, or of their axons in the white matter of the centrum, is in all probability capable of causing motor impulses—the pure cerebral reflex.

The subject of convulsions and rigidity in apoplectiform hemiplegia is mentioned in a casual unsatisfactory way by Déjerine,[2] Strümpell,[3] Brissaud[4] and Leube,[5] all of whom state that these symptoms point to the rupture of the hemorrhage into the ventricles. Nowhere have I been able to find any attempt at a physiologic explanation on this hypothesis.

Before considering my cases it is necessary to deal with the question of the possibility of stimulating the axons of the upper motor neurons when they are separated from their perikaryons. Weber[1] denies this possibility in no uncertain language:[6]

> That a direct stimulation of the pyramidal fiber can cause convulsions or rigidity is against all experimental and clinical experiences.

Against this *ex cathedra* dictum of Weber's I would call attention to the work of Beevor and Horsley,[7] who succeded in mapping out the internal capsule of the Bonnet monkey and the orang-outang by means of the secondary faradic current.

Hoche, in three articles,[8] discusses experimental work that he did on the cut end of the spinal cord in criminals who had just been beheaded. He used the faradic current, and although much of his work was negative and seemingly corroborative of Weber's statement, yet in the case where he made his test with least delay after decapitation his result speaks as positively in the affirmative as Weber's in the negative. Hoch's first article[9] says:

> According to the previous accounts I had expected little action; therefore, so much the more surprising was the effect. The corpse, which was lying flat, raised both its arms, bent at the elbowjoint, and with clenched fists, up in the air, the thorax raised itself in inspiration (so that with repeated stimulation the stump of the neck began again to bleed, due to the pump-like action of the thorax) and both legs were in tonic extension.

Hitzig[10] called attention to the fact that the excitability of the central nervous system rapidly failed after exsanguination. This accounts, it seems to me, for many of Hoche's negative results. I have found the lateral columns of the spinal cord in exsanguinated dogs incapable of stimulation. Morat[11] says:

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* Read in the Section on Nervous and Mental Diseases of the American Medical Association, at the Fifty-ninth Annual Session, held at Chicago, June 1908.

* From the Department of Neurology and the Laboratory of Neuropathology of the University of Pennsylvania.

1. Weber, L. W.: Gleichseitige Krämpfe bei Erkrankung einer Kleinhirnhemisphäre, Monatschr. f. Psychiat. u. Neurol., 1906, xix, 478.

2. Déjerine, J.: Sémiologie du système nerveux, p. 476.

3. Strümpell: Lehrbuch der specielle Pathologie und Therapie, ed. 13, 1900, iii, 477.

4. Brissaud: Traité de médecine, 1894, vi, 53.

5. Leube, W.: Specielle Diagnose der inneren Krankheiten, ed. 6, 1901, ii, 225.

6. "Dass eine direkte Reizung der Pyramidenbahn Zuckungen oder Krämpfe hervorrufen kann, ist nach allen Experimentellen und klinischen Erfahrungen nicht anzunehmen."

7. Beevor, Charles E., and Horsley, Victor: An Experimental Investigation Into the Arrangement of the Excitable Fibers of the Internal Capsule of the Bonnet Monkey (Macacus Sinicus), Phil. Tr. Roy. Soc. London, clxxxi, B, 49-88; A Record of the Results Obtained by Electrical Excitation of the So-called Motor Cortex and Internal Capsule in an Orang-Outang (*Simia satyrus*), Phil. Tr. Roy. Soc. London, 1890, clxxxi, B, 129-158.

8. Hoche, A.: Zur Frage der elektrischen Erregbarkeit des menschlichen Rückenmarkes, Neurol. Centralbl., 1895, No. 14, p. 754; Neurol. Centralbl., 1900, p. 994; Ueber Reizungsversuche am Rückenmarke von Enthaupteten, Berl. klin. Wchnschr., 1900, No. 22, p. 479.

9. "Nach den bisher vorliegenden Angaben hatte ich mir wenig Wirkung versprochen; um so uberraschender war der eintretende Effect: der flach liegende Leichnam hob beide Arme mit gebeugtem Ellenbogengelenk und geballten Fausten in die Höhe, der Brustkorb hob sich inspiratorisch (so dass bei wiederholter Reizung, Dank der Pumpwirkung des Thorax, der Halsstummel wieder anfing, zu bluten) und beide Beine geriethen in Strecktonus."

10. Hitzig, Edward: Physiologische und klinische Untersuchungen über das Gehirn, Berlin, 1904, part 1, p. 23.

11. Morat, J. P.: Physiology of the Nervous System, 1906, p. 279.

Vulpian has devised an experiment on this disputed point which is decisive. In a rabbit or dog, after it has been put under the influence of ether, he lays bare the spinal cord for a length of six to ten centimeters above its lumbar enlargement; he cuts all the roots which correspond to this length (in order that he may not have to take into account the movements which would result from this stimulation by the diffusion of stimulating current). He cuts the cord in the most anterior portion of the region which has been laid bare and, throughout the extent of the latter, removes the posterior columns, a portion of the lateral columns, and as much as possible of the gray matter, in such a way that the anterior or anterolateral columns (according to circumstances) thus separated are only connected with the cord by their posterior extremity. If the anterior extremity of the columns isolated in this way be pricked or compressed, somersaults are provoked; that is to say, contractions of the muscles of the hind quarters of the animal and movements of the tail. If, by following the anterior fissure, the two anterior columns be separated with exactitude, the one from the other, by a longitudinal incision, it is observed, by stimulating one of them, that movements much stronger ensue in the corresponding limb than those arising in the limb of the opposite side.

Vulpian[12] gives a very similar experiment in his "*Lecons sur la physiologie générale et comparée du système nerveux*," but I have not been able to find the original of Morat's quotation.

I have been unable to cause convulsive movements by stimulating electrically the lining of the lateral ventricles of the dog.

The pathologic material of the following cases has been generously given to me by Dr. Spiller, to whose kindness I am very deeply in debt.

CASE 1.—*Patient.*—H. J., female, aged 44, while doing her housework on the morning of Jan. 4, 1905, became faint and sat down on a chair, shortly afterward, falling to the floor unconscious.

Examination.—At the Philadelphia Hospital on the same day a right hemiplegia was demonstrated. The right upper limb was flexed at the elbow joint and efforts to straighten it met with much resistance. Both limbs on the right side could be moved but much less freely than the limbs of the left side. The patient's speech was thick and unintelligible and her answers were made in monosyllables. Her mouth was drawn to the left. In testing the reflexes it was doubtful whether any patellar tendon jerk was present on either side. Ankle clonus could not be elicited. The Babinski reflex was present. Although the patient had a tendency to stupor when brought to the hospital, yet she could be aroused and answered questions sensibly.

Clinical History.—At 11 a. m., January 15, the patient began to have convulsive attacks with unconsciousness. The convulsions began in the right side of the face, then extended to the right arm, and after that to the right leg, the head being turned to the left and the eyes to the right. These convulsive seizures lasted from three to five minutes. Later the convulsions became alternate, first on one side and then on the other. The side which was not involved remained absolutely flaccid. Rarely the convulsion involved both sides at once. The tongue was bitten frequently. The levator palpebrarum muscles, the occipitofrontalis and all the facial muscles were implicated in these convulsive seizures. At times the mouth was drawn strongly to the left but never to the right.

At 5 p. m. of this day a lumbar puncture was performed and about 15 c.c. of a reddish cloudy fluid were withdrawn. This at first dropped quite rapidly but was not apparently under much pressure. By this time the convulsions had become milder, but were still alternating on each side. The patient died January 15, the day of the onset of the convulsions.

Autopsy.—On horizontal section a large hemorrhage of recent development was found in the left lenticular nucleus. It extended into the internal capsule and had broken into the lateral ventricle at its anterior end. The hemorrhage was found in both lateral ventricles but chiefly the left. The extent of the lesion posteriorly was such that it involved the entire posterior limb of the internal capsule and the posterolateral part of the optic thalamus.

The clinical history of this case would indicate that the hemorrhage was of very gradual development. The convulsions on the left side were probably due to irritation of the right motor cortex from increased intracranial pressure.

CASE 2.—*Patient.*—C. S., male, aged 50, laborer, white, was brought into the Philadelphia Hospital unconscious and without data as to past history. Soon after admission (Oct. 2, 1906) he began having general convulsions involving all limbs, but the left side somewhat more than the right.

Examination.—When tested between convulsive seizures the right arm would drop flaccidly when raised, but the left arm would be replaced by the patient. The notes recorded under date of October 4 state that there was present conjugate deviation of head and eyes to the right. When the right arm and leg were pricked with a pin there was no movement on the right or left side. On pricking either limb on the left side, the limb so irritated was drawn up. The patellar tendon jerks on the right side were marked + and on the left side ++. There was no ankle clonus on the right side and a quickly disappearing ankle clonus on the left. The Babinski reflex was present on both sides. The left leg tended to develop a general clonus when the tendon reflexes were examined. There were involuntary evacuations of the bladder and rectum. By testing the patient with his feeding-cup a right lateral homonymous hemianopsia seemed to be present. The left pupil was larger than the right and both reacted to light.

Autopsy.—An horizontal section made through the left cerebral hemisphere, at a level just above the tenia semicircularis, showed an extensive hemorrhage entirely destroying the left lenticular nucleus at this region and breaking into the left lateral ventricle anteriorly and posteriorly and encroaching mesially on the optic thalamus. A section one centimeter below this showed the site of the hemorrhage moved outward, the head of the caudate nucleus at this level being uninvolved, the lateral part of the putamen being the farthest encroachment medianward on the lenticular nucleus. There was at this level a slight involvement of the posterior part of the posterior limb of the internal capsule.

CASE 3.—*History.*—J. E., male, aged 28 years, white, five weeks prior to his admission to the Philadelphia Hospital, Sept. 16, 1906, took a dose of quinin, he thought about fifteen grains, for "chills and fever" from which he had been suffering about one week. A "couple of hours" after this dose he felt very sleepy, lay down, became unconscious and remained so for three days. When he regained his consciousness again he was paralyzed on the left side, his speech was thick and he could not see clearly. He regained a fair amount of power in this paralyzed side. Although he had complete incontinence of bladder and rectum for one week after the attack yet it is recorded that his condition had so far improved in this respect that if he attended to himself at once when he felt the inclination he could control his sphincters. On Nov. 16, 1906, he began to have repeated convulsions. These followed one another with irregular intermissions until he died the same day. There is no description of the convulsions on his record.

Autopsy.—The brain bulged considerably in the right frontal and right frontoparietal regions with flattening of convolutions and obliteration of sulci. On horizontal section there was found a large hemorrhage which had in all probability started in the lenticular nucleus on the right and had torn its way both anteriorly and posteriorly into the lateral ventricle. The entire ventricular system, right and left, was filled with blood. The aqueduct of Sylvius and the fourth ventricle were distended and filled with blood. The anterior part of the callosomarginal region on the right had become greatly distended and had encroached on the left hemisphere. The destruction of tissue in the right cerebrum was very

12. Vulpian, A.: Leçons sur la physiologie générale et comparée du système nerveux, Paris, 1866, p. 360.

great and involved the anterolateral part of the optic thalamus. There was also some destruction of tissue in the left cerebrum, chiefly about the anterior extremity of the lateral ventricle.

CASE 4.—*History.*—W. L., male, aged 52, had an apoplectic attack in November, 1903, with unconsciousness, after which he was hemiplegic on the left side. He was taken to the Hospital of the University of Pennsylvania. The unconsciousness lasted twenty-four hours, during which time there was a convulsive seizure. In June, 1904, he had another attack of unconsciousness with convulsions and after this, three similar attacks about six weeks apart. He became able to walk afterward but had only a little control over his left hand. On Aug. 8, 1905, he had about fifteen convulsions in which the right arm was in clonic spasms, preceded by a conjugate deviation of the head and eyes to the right. The convulsive condition then affected the left arm and the lower limbs. The whole body was then the subject of clonic spasms followed by a brief period of tonic contraction. Apparently the facial muscles were equally involved. On Nov. 20, 1905, the patient slipped and struck the right side of his forehead against a door. He was put to bed in a perfectly conscious state, but gradually lost consciousness. In about half an hour after he was unconscious he began having convulsions starting in the left arm and extending to the left leg, left side of the face and finally over the entire body. He had a number of these convulsions following one another in rapid succession and lasting from one-half to two minutes. At times there existed almost a tonic condition. These convulsions commenced about 1:30 p. m. and the patient died at 5 p. m. The convulsions stopped some time before death and Cheyne-Stokes respiration set in.

Autopsy.—The hemorrhage probably started in the putamen of the right lenticular nucleus. Mesially it had encroached on and involved the internal capsule and optic thalamus. Posteriorly it had torn through the posterior part of the posterior limb of the internal capsule into the lateral ventricle. Externally it had torn through and completely obliterated the external capsule and was in close juxtaposition to the cortex of the island of Reil. Anteriorly it had torn through the white matter which forms the outer wall of the extreme end of the anterior horn of the lateral ventricle and had likewise passed externally, via the white matter, past the anterior extremity of the insula, to within one centimeter of the cortex of the foot of the third frontal convolution. All the ventricles were filled with blood.

CASE 5.—*Patient.*—C. H., male, aged 80, born in Germany, was brought to the Philadelphia Hospital unconscious on March 6, 1906.

Examination.—The right arm and leg were paralyzed, the face was slightly drawn to the left and the right nasolabial fold was almost obliterated. The right eye was not completely closed and offered no resistance when an attempt was made to open it. There was conjugate deviation of head and eyes to the left. The tongue in the mouth deviated to the left, protrusion, of course, being impossible. The right upper limb was flaccid but the right lower limb was spastic.

Clinical History.—At first there was right hemianesthesia but this was of only short duration, as Dr. Spiller made a note on March 7 to the effect that a pin prick was perceived in the right side of the face and in the right upper and lower limbs. By March 8, the right upper limb had become spastic. Slight involuntary jerkings in the right lower limb were also noted. The stupor was too great to make any test for hemianopsia. On March 10 the right hemianesthesia was again noted. The patient died March 11, 1906.

Autopsy.—The hemorrhage, which was in the left cerebral hemisphere was studied in three horizontal planes about one centimeter apart. The highest section was at the level of the top of the lenticular nucleus, and the hemorrhage here involved the external and posterior part of the thalamus and the white matter external to it. There was only a thin layer of white matter between the hemorrhage and the cortex of the highest part of the insula. The section one centimeter below this showed that the hemorrhage had involved the posterior half of the lenticular nucleus and had also cut the posterior two-thirds of the posterior limb of the internal capsule. In the lowest section, one centimeter below the preceding, there still remained a small hemorrhagic area involving the posterior edge of the inner portion of the putamen and also the posterior edge of the globus pallidus and destroying the posterior extremity of the posterior limb of the internal capsule and here breaking into the lateral ventricle.

CASE 6.—*Patient.*—N. B., male, aged 60, white, was admitted to the Philadelphia General Hospital, April 4, 1903. The diagnosis of his condition on admission was pseudobulbar palsy and his previous history and examination are so foreign to the subject at hand that I shall omit them, passing at once to the record of relevant facts.

Clinical History.—On Sept. 4, 1904, the patient complained of feeling bad and was apprehensive that something was going to happen to him. On September 5, the orderly noticed that the patient was trembling much more than usual when being put to bed. At 6:30 p. m. of that evening the patient had a convulsion lasting about three minutes. There were several convulsive seizures following this first and lasting about the same time, but they are not described, so the question of consciousness, location and character can not be determined. At 7:15 p. m. the patient had an attack lasting about one hour, in which the entire right side of the body was in a state of clonic convulsion, the left side remaining free from movement. During this convulsion he was unconscious, bit his tongue and frothed at the mouth. After this seizure he remained quiescent until 1 a. m., Sept. 6, from which time to 7 a. m. of the same day he had twelve convulsions.

He had, in addition to unconsciousness, conjugate deviation of his head and eyes to the left. A pin prick on either side of the face caused movement of the face, but if the limbs were pricked there was no response. Dr. Spiller's notes record that when the right upper limb was raised and allowed to fall it did so as though dead. Both upper limbs were spastic, though the right was more so than the left. The biceps tendon jerk was exaggerated in both sides. When the left upper limb was stuck with a pin there was voluntary movement, but the right, under the same conditions, exhibited no motion. Both the lower limbs were spastic, both had exaggerated patellar tendon jerks and Babinski reflex. There was persistent ankle clonus on the right but not on the left side.

Autopsy.—Examination of the brain revealed a small cortical and subcortical hemorrhage just posterior and inferior to the angular gyrus. This lesion passed inward to within a few millimeters of the lateral ventricle. The optic thalamus was uninvolved.

CASE 7.—*Patient.*—J. W., male, aged 37, white, was admitted to the Philadelphia Hospital on May 10, 1905, suffering from tabes dorsalis. His previous history and physical examination as to his tabetic trouble I shall omit.

Clinical History.—He was allowed to go out on July 4, and next day, July 5, he was brought back by the police. He had been drinking and developed that evening a right-sided hemiplegia without aphasia or loss of consciousness. Until December there was nothing of moment to record except that his hemiplegic condition was much improved. On the evening of December 12 he fell unconscious. His head and eyes were rotated toward the right. On December 14, it is recorded that the face was drawn toward the right and that the left nasolabial fold was obliterated. A weakness in closing the left eye was also noted. The tongue had a fine tremor and deviated to the right. The power in the upper extremities was diminished. The grip was much weaker in the left hand than in the right. The left upper extremity was spastic and there was complete loss of power in the left lower limb with flaccidity. He was able to move the right lower extremity freely. The Babinski reflex was present on the left side. All the other reflexes of the lower limbs were absent presumably on account of the tabetic lesion. The patient gradually lost ground and without exhibiting any additional symptoms worthy of note died on December 26.

Autopsy.—A horizontal section through the cerebral hemispheres just below the highest part of the fornix showed a hemorrhage involving the fibers which in a section lower down, if the optic thalamus and lenticular nucleus were cut, would form the posterior part of the posterior limb of the internal

capsule. This hemorrhage had broken through into the lateral ventricle posteriorly. The center of this hemorrhage was evidently well above this level, possibly posterior and mesial to the roof of the body of the lateral ventricle. The posterior part of the corpus callosum was involved in this hemorrhage.

In a section one centimeter below this, there was found in the posterior part of the putamen of the left lenticular nucleus an old cyst which evidently caused the right hemiplegia. On the right side there was found a cyst the size of a kidney-bean involving the anterior part of the putamen of the right lenticular nucleus and encroaching on the external capsule.

CASE 8.—*Patient.*—G. R., male, aged 77, white, born in Germany, was admitted to the Philadelphia Hospital on July 19, 1904, with the history that he had had the night before a sudden attack of unconsciousness with a left hemiplegia. There was slight deviation of the eyes to the right, the left side of the face was smoother than the right and the tongue deviated toward the left. The reflexes were all lost on the left and the Babinski reflex was present on the left and absent on the right. He could not perceive when stuck with a pin in his left upper or lower limb. He died on July 25, 1904.

Autopsy.—A horizontal section through the right cerebral hemisphere just below the corpus callosum showed a hemorrhage destroying the posterior part of the lenticular nucleus and most of the posterior limb of the internal capsule, especially its posterior part. A section one centimeter below this showed the hemorrhage extending for about one centimeter into the temporal operculum. The optic thalamus was uninvolved.

CASE 9.—*History.*—I quote from two letters written to Dr. Spiller by Dr. Thomas R. Neilson, in regard to the patient, Miss H., aged 50: "I was called to see her between 9 and 10 o'clock on the evening of April 19, 1904, and found her in bed, completely unconscious. And from her brother and his wife I got the information that she had fallen down in her room some time earlier that evening. When I saw her, her condition, as well as I now remember it, was as follows: Complete unconsciousness, complete paralysis of all the extremities; no response to pricking fingers or toes with a pin; pupils did not respond to light and were moderately contracted, respiration puffing but not accelerated; pulse 84 with no marked degree of tension. The mouth was, I think, slightly drawn to the left, but I will not be positive of this. In a short time, say twenty to thirty minutes, I recollect that pricking the fingers of the left hand excited muscular contraction of that arm resulting in flexion of the elbow. I saw Miss H. a second time on April 21, at about noon; she was then unmistakably dying. Paralysis was complete, temperature elevated, pulse weak and frequent, respirations labored and stertorous. She did die that day." There was no history of convulsions in this case.

Autopsy.—I quote from Dr. Spiller's postmortem record: "A large hemorrhage was found filling the whole of the left lateral ventricle and not extending into the right ventricle; the substance of the brain was implicated in the lesion only near the anterior part of the left lateral ventricle. The attack had lasted forty-eight hours, and convulsions are said to have been absent."

CASE 10.—*Patient.*—W. U., male, aged 72, white, born in England, presented a history which does not bear on the question at hand except that he had been an excessive user of alcohol and had had sugar in his urine for the past fifteen years.

Previous Attack.—The patient retired at his usual time on the night of March 14, 1905, and was found next day at noon lying at the side of his bed in a semi-conscious condition with a left hemiplegia. In this condition he was sent to the Hospital of the University of Pennsylvania.

Examination.—Dr. Spiller's notes record that there was a semi-stupor and that the left side of the face was flattened, the nasolabial fold on that side having disappeared. The eyelids on the left could not be closed as firmly as on the right. The forehead wrinkled better on the right than on the left side. The tongue deviated to the left when protruded. The masseter contracted equally well on both sides. The left upper limb fell lifeless. The patient made no movement with his left lower limb. He seemed to present a left homonymous lateral hemianopsia for when his feeding-cup was brought to him from his left side he made no attempt to take it. Sensation to pin-prick on left side was preserved. The biceps and triceps tendon jerks were not very prompt on either side. The patellar and Achilles tendon jerks were lost on both sides. The Babinski reflex was present on the left but not on the right.

Without any marked change except deepening stupor and Cheyne-Stokes breathing the patient died on March 26, twelve days after his attack. There is no record of convulsion.

Autopsy.—On horizontal section there was found a hemorrhage bounded anteriorly by a line passing through the genu of the internal capsule. Posteriorly the hemorrhage had broken through the posterior part of the optic thalamus into the lateral ventricle. The posterior limb of the internal capsule was destroyed.

SUMMARY.

Four patients (Nos. 1, 2, 3, 4) had convulsions, rupture of the hemorrhage into the ventricles and involvement of the optic thalamus.

One patient (No. 5) had rigidity, rupture of the hemorrhage into the ventricles and involvement of the optic thalamus.

One patient (No. 6) had convulsions, no hemorrhagic rupture into the ventricles but an involvement of the cortex and subcortical white matter of a sensory region.

Three patients (Nos. 7, 8, 9) had no convulsions and no optic thalamus involvement. Two of these (Nos. 7 and 9) had ventricular inundation; one of them had not.

One patient (No. 10) had no convulsion and had optic thalamus involvement. (It is but just to say that this last case was not sufficiently under observation so that it could be said with certainty that there was no convulsive action.)

My conclusions are:

1. Ventricular inundation in cerebral hemorrhage has no etiologic bearing on the convulsions or rigidity.

2. Purely tentatively and basing my opinion on the findings in these ten cases, I conclude that convulsions and rigidity in apoplectiform hemiplegia are frequently due to an involvement of the optic thalamus, or the corticothalamic sensory fibers, with the necessary proviso that enough of the posterior limb of the internal capsule remain uninjured to convey the motor impulses.

3. Convulsions and rigidity in apoplectiform hemiplegia may be caused by a sudden or rapid increase in intracranial pressure due to cerebral hemorrhage, even though the optic thalamus and the corticothalamic sensory fibers are uninvolved. In this case, as above, there must be a sufficient preservation of the motor part of the internal capsule for the transmission of impulses to the parts concerned.

4. It is altogether unlikely that pressure or chemical change acting on the motor axons of the centrum or internal capsule—these axons having been severed from their perikaryons by the hemorrhagic process—could exert a stimulating action sufficient to cause convulsions or rigidity.

DISCUSSION.

DR. WILLIAM G. SPILLER, Philadelphia: It has been a question in my mind for many years whether or not convulsions are caused by hemorrhage into the ventricle and may be considered as indicative of this lesion. I am glad, therefore, that Dr. Allen has studied this subject so carefully. I do not believe that a hemorrhage into the ventricles always produces convulsions and I doubt whether convulsions occurring with the onset of hemiplegia may be regarded as indicative of ven-

tricular hemorrhage. I am glad that Dr. Allen has brought out another point clearly, viz., that when the motor tract is completely cut across by hemorrhage, it is not probable that convulsions will occur. A case of this kind was presented by Dr Bochrock. A man had hemiplegia from cerebral hemorrhage, and convulsions occurred on the side on which the hemorrhage was, but not on the other. My explanation was that the motor fibers were cut on the side of the hemorrhage, and therefore convulsions occurred on the same side, but not on the opposite side, from general irritation of the brain.

DR. A. R. ALLEN, Philadelphia: In answer to Dr. Spiller's question as to the preservation of the motor tract in the cases that had convulsion: One case suffered considerable damage to the entire posterior limb of the internal capsule, which damage I think was late in the hemiplegic attack. I take it for granted that at the time the patient had the convulsions and rigidity, the hemorrhage had not been as extensive as it was found at the autopsy, that being indicated by the clinical history.

ZONULAR OPACITY OF THE CORNEA.*

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Zonular opacity of the cornea is described very briefly in the majority of text-books. Some do not mention it at all, a number dismiss it with a short paragraph, while a very few give it a page.

Nettleship contributed an article of about 25 pages on this subject to the *Archives of Ophthalmology*, in 1879, giving in detail 22 cases seen by various observers. Bock, Graefe, Usher, Best, Leber, and a few others have also investigated the subject quite extensively. The first description was given by Dixon in 1848, followed by Bowman, who went more deeply into the matter. Dixon called it calcareous film of the cornea, finding calcium carbonate and phosphate in the parts removed. Graefe named it band opacity, while Fuchs employs the term given at the heading of this paper. It has been more frequently designated as ribbon-like opacity, or keratitis, and calcareous keratitis.

Zonular opacity occurs in two forms, primary and secondary; the former in eyes otherwise normal, the latter in those blind from glaucoma, iridocyclitis or other intraocular affections. While neither form is common, the primary is much rarer than the secondary form.

It has been described as having the appearance of minute dots crowded together, "punctiform opacities," a gray stripe stretching across the cornea, most marked a little below the center, on the part exposed when the eye is open. The opacity usually begins about the same time at two points near the inner and outer corneal margins, meeting later in the middle line. Some cases have begun centrally. There is always a narrow, transparent zone about the margin.

The progress of the disease is extremely slow, usually continuing for years, although Wells saw one case develop in a few months. Sooner or later both eyes are almost certainly involved, but one may be affected quite a number of years before the other. In some cases there are spells of severe pain, while in others (probably the majority) there is no pain at all. There is no indication of ulceration, the corneal epithelium being smooth and unbroken, in the primary form.

This disease occurs principally in men and after middle age. In 14 cases tabulated by Nettleship, all but 4 patients were over 45 and only one patient was under 30.

The pathology of this affection consists in the deposit of hyaline masses and lime in the upper layers of the cornea, or, as it has been otherwise expressed, "hyaline degeneration of corneal cells that later become calcareous." Bowman's membrane may be the part first affected, and there may be also proliferation of connective tissue.

The etiology is obscure. The location of the trouble in the exposed portions of the cornea has led to belief in a local cause. But if this were true, why is it found in so few persons? Must there not be some predisposing tendency? In gouty subjects, or those with uric-acid diathesis, the nutrient fluid of the cornea, according to Leber, is supposed to be richer in lime salts and these may become deposited by evaporation. Swanzy says that in primary cases the cause of the degeneration is simply loss of vital energy in the cornea from vascular changes, attributed by Nettleship to gout, renal disorders and cardiac affections. Fuchs saw a case in a physician who had blown calomel into his eyes for years, and Toplanski met the disease in hatmakers whose eyes were irritated by flying pieces of hair. Graefe believed that, as the secondary form of this disease followed glaucoma, so the primary form was akin to the glaucomatous process or would eventually go over into glaucoma. As would be expected, these cases are made worse by atropin.

Sight has been restored or improved in some cases by scraping the cornea, the lime deposits coming away in flakes. In other cases iridectomy has proved of great advantage. May advises the use of carbonate of soda after scraping. Sellerbeck advocated the hourly use of 5 per cent. hydrochloric acid, while Nettleship tried nitric acid in one case without effect. Noyes stated that these cases rarely are benefited by any method, and Fox, in his text-book, in 1904, says treatment is of no avail. Guillery, of Cologne, has recently tried ammonium chlorid, beginning with a 2 per cent. solution and gradually increasing to 20 per cent. While his article[1] is headed "Calcareous Opacity of the Cornea," it is evident that he means opacity from lime burns, a very different thing from the subject of this paper.

The following case from my records, the only case of primary zonular or calcareous opacity of the cornea seen in 17 years of eye-work, will serve to illustrate the points of this disease. It is also worth recording on account of its rarity and the gratifying result of operative treatment. Indeed, all cases of such a rare disease, about which there is so little definite knowledge, should be reported fully.

Mr. W. W., born in England; first seen by me Feb. 23, 1897, when he was 34 years old. There was, then, a slight haziness of left cornea to the outer side, and he suffered considerable pain. He was a bricklayer and engaged at this time in the construction of sewers. On the theory that the keratitis might be malarial, he was given quinin, followed by arsenic. (De Schweinitz[2] described a peripheral annular parenchymatous infiltration of the cornea, of malarial origin, separated from the margin by a zone of clear tissue.) Our diagnosis seemed to be confirmed by the fact that the pain soon yielded to the antimalarial treatment. He was seen only a few times in 1897 and 1898, and then passed from observation for a number of

* Read in the Section on Ophthalmology of the American Medical Association, at the Fifty-ninth Annual Session, held at Chicago, June, 1908.

1. Arch. Ophth., Sept., 1907.
2. Philadelphia Polyclinic, 1895.

years. The opacity evidently increased very slowly in extent and density.

September 1, 1904, he returned, complaining of pain in the right eye, the vision of which was normal, but there was a faint, almost imperceptible, haze near the outer margin and rather low down. The opacity of the left eye was now very dense and covered most of the cornea, being surrounded by a zone or rim of clear tissue, very narrow, and nearly the same width in all parts of the circumference, except the upper margin, where it was a little wider. Vision in this eye was reduced to light perception only.

The opacity in the right eye progressed very slowly. Attacks of severe pain occurred at irregular intervals without a particle of redness of the ball. Tension was at all times normal. The pupil was round and responsive to light. He was given quinin and arsenic again, without any apparent effect. Analysis of urine showed no albumin or sugar. He had the appearance of being plethoric, was rather fleshy, with red cheeks. He was not a user of alcohol in any form, but was a great meat eater.

His internal treatment for a long time consisted in the alternate use of salicylate of sodium and iodid of potassium. Pilocarpin and holocain locally, with the addition of dionin a little later, seemed to modify the pain, and after a few months the attacks occurred at longer intervals and then ceased altogether. The dionin had no effect on the opacity. The cessation of pain and the long preservation of good vision led us to believe in the efficacy of the treatment. But it is more than likely that it was simply the naturally slow progress usually seen in such cases. A very weak solution of atropin was tried at the suggestion of one of my colleagues, who, however, advised its discontinuance at the next visit, noting some loss of vision. This accords with Graefe's view that atropin is contraindicated in zonular opacity. (In Nettleship's article mention is made of the use of atropin in several cases with no statement as to its effect further than that the pupils dilated readily.)

My patient was sent to Dr. James M. Ball of St. Louis, with a note asking if this were not a case of zonular or ribbon-shaped opacity, pictured and described on page 335 of his text-book. He replied that it was a typical case, and suggested an iridectomy downward and inward on the left eye. I could not see the advantage of this, as the rim of clear tissue in that direction was so very narrow. It looked to me that an upward iridectomy would be more promising, if any were done, as the rim was wider here than at any other part. But the patient was averse to any operation just then, the vision being still good in the other eye.

The faint opacity seen first in the right eye gradually extended upward and toward the center of the cornea, another band starting a few months later from near the inner margin and extending also toward the center. For a number of months the space directly in front of the pupil was not encroached on. Finally, a very faint haze appeared there, reducing distant vision from 20/20 to 20/40, where it remained for some time, falling to 20/70 for a while and then returning to 20/40. For nearly two years vision was good enough for his regular work as foreman in one of the departments of the Malleable Castings Company. But finally the opacity over the pupillary region deepened and extended a little higher, so that work had to be given up. He could not see enough to go about by himself.

Early in October, 1906, assisted by my colleague, Dr. F. A. Morrison, I proceeded to scrape off a space directly in front of the right pupil, and two weeks later made another scraping, this time assisted by Dr. W. N. Sharp, who examined some of the scrapings under the microscope, finding degenerated cells, probably hyaline, but no lime crystals. This did not flake out, as some have described it. Probably the other eye, in which the disease was more advanced, would have shown this. I regret that we did not try the effect of acids.

The scraping was followed by the use of weak carbonate of soda solution, as suggested by May, but, although we had scraped as much as we dared, there was no improvement of vision. In fact, it was temporarily made worse.

After the inflammatory reaction had subsided, he was sent to the Indianapolis City Hospital, where I did an upward iridectomy, resulting in 15/40 vision with $+6$. sph. $= +2$. cyl., axis 180. This enabled him to return to work and earn as much as ever. This vision has been maintained now for more than a year.

About eight months ago he was helping a fellow workman, a sufferer from trachoma, drop medicine into his eye, and accidentally infected his own left eye, fortunately not the one I had operated on. Prompt treatment with strong solutions of silver nitrate at the office, and 1 to 4,000 bichlorid solution at home, controlled this well, and the good eye has never become infected.

It is interesting to note that there has been some improvement in the unoperated eye. At one time light perception alone existed, and in November, 1906, when the other eye was operated on, there was only faint shadowy perception of large objects, not enough to enable him to get about without being led, but the sight of this eye now is 10/200. Is this due to the internal use of salicylates and iodids? Has the local treatment for the trachoma or the irritation of that disease had any tendency to clear it up? Does the operation on one eye have any effect on the other? These questions are easy to ask, but very difficult to answer. I can give no satisfactory explanation. The opacity certainly looks less dense than formerly, especially directly in front of the pupil. In one of the cases given by Nettleship, Mr. Fairlie Clarke, under whose care the patient was, thought the central clear space in front of the pupil due to spontaneous chipping away of the film.

In view of the good result in this case, and in some of the cases reported by Bowman, Walton, Graefe, Nettleship and others, the statements of Noyes and Fox about the uselessness of treatment sound strange. Possibly they had in mind only the secondary form, occurring in eyes already blind, aside from the opacity, and therefore not amenable to treatment.

In conclusion, I would emphasize the interesting features of this case, the comparatively early age at which the affection began, the rather unusual pain in the first stages and the remedies therefor, the improvement in the vision of the unoperated eye, and the gratifying result of the iridectomy in the other. These circumstances, together with the rarity of this form of the disease and the paucity of the literature, seem to justify the detailed report of this interesting case.

427 Newton Claypool Building.

DISCUSSION.

DR. E. V. L. BROWN, Chicago: So far as I know, no cases of primary zonular opacity have come to anatomic study and therefore the etiology is not clear. The secondary cases are explained on the basis of the hyalin and calcareous degeneration of the anterior part of the cornea and Bowman's membrane; many of these cases have been studied. I have sections from four or five cases and have looked them over in connection with this discussion. The main point, it seems to me, is the clearing up of the left eye. There are two possibilities. First, the gradual clearing of the infiltrate about the areas of calcareous degeneration may have taken place from the absorption of the fatty degenerated infiltration, in the manner contended for by Wossius, who has recorded the findings of fatty substance in the anterior part of the cornea; yet there was no inflammation of this eye at any time. Gradual clearing might occur without any vascularization of the cornea, but any marked change would be accompanied by some so-called inflammatory phenomena. The other cause I have thought of is also accompanied by vascular changes attendant on the trachoma, which appeared in the eleventh year of the case. There is just a possibility that these calcareous infiltrations in the anterior part of the cornea were sequestrated and thrown off just as any foreign body would be, and that enough of this took place in

the central area of the cornea to allow clearing. The case was followed up for some time after improvement of vision and there has been no decrease which would seem to make this an impossible explanation. When there has been such a defect, essentially an ulcer, and the epithelium grows over it again, there is invariably the development of connective tissue between the stroma and the depressed epithelium. The exhibition of fluorescin at this time would have determined if there was an ulcer and I would like to ask if it was used at any time for the determination of a defect in the epithelium. I only suggest this as a possible means of the clearing.

DR. L. H. TAYLOR, Wilkes-Barre: I have seen only one case of this kind and that not in my own practice. In this there were two bands, one in each eye; one at an axis of 45 and the other of 135 degrees. It was perfectly symmetrical, all the way of the same width, and the tissue above and below perfectly clear.

DR. EDWARD JACKSON, Denver: I have seen three cases of primary opacity of this kind at comparatively long intervals. The first was seen very soon after I entered practice. I saw this patient for some years and there was no change in the opacity up to death. The second one I saw once or twice at the Wills Eye Hospital and the third I have seen within the last two years. The opacity in all three was characteristic, involving the part of the cornea exposed in the palpebral opening, but showing a transparent position between the margin of the opacity and the margin of the cornea. There was no history of previous disease and no evidence of any other disease.

The last patient had noticed failing vision for seven or eight years; she had not attempted to do any reading or sewing for five years. When she came to me the best obtainable vision was 4/45. She had lived in Kansas and had been much exposed to dust for many years. The film was gray, slightly brownish and consisted of minute dots. The cornea reflex was absolutely perfect and the epithelium perfectly smooth. In all these cases I advised scraping the cornea. The first two did not submit. This one did and under holocain the film was scraped away. The central densest portion scraped away easily; it came away in flakes. Where the opacity was less dense it did not flake that way, and was more difficult to remove. The operation was done under local anesthesia and without pain, but was followed by severe pain, such as we have from abrasion of the cornea, which lasted some eight or ten hours, and gradually passed away. It was relieved a good deal by instillations of holocain. At the end of a week vision had fallen from 4/45 to 4/100. At the end of the second week, however, it began to improve, and at the end of three months the vision in one eye was 4/9 and in the other 4/12. The opacity appeared to be chiefly on the under surface of Bowman's membrane and consisted of isolated dots. I could not get any certain evidence that there was any calcium carbonate in the flakes.

DR. F. C. HEATH in answer to questions: Fluorescin was not used because the corneal epithelium was smooth, and I saw no indication for its use. There was no pannus following the trachoma. The film was grayish in color. I observed the same regularity of which Dr. Taylor speaks and the film was transverse.

Treatment of Hydrophobia in Ancient Times.—The *Tribune Médicale*, May 30, describes the old practice of immersing persons in the sea as a preventive and cure of hydrophobia, citing the legend that Euripides was saved by this means after having been bitten by a rabid dog. A number of cases are quoted from the historical records of the eighteenth century in which persons sought the sea as a preventive after having been bitten. One old chronicle comments on the death of an English lord from hydrophobia notwithstanding that he had been duly immersed in the sea: "This proves that there is no remedy for the imagination, and that people are cured less by the sea than by their imagination that they are cured." We learn from the case of a page of M. de Nevers, in the days of Henri IV., that when the thalassotherapy failed it was the practice to put a bullet through the head of the victim when the hydrophobia had declared itself. The page in question "died in peace just as they were on the point of firing a harquebus at his head."

Clinical Note

A TYPICAL CREST-SHAPED SEPTAL DEFLECTION,

WITH PRESENTATION OF SOME NASAL INSTRUMENTS.*

O. T. FREER, M.D.
CHICAGO.

In a deflected septum removed from a cadaver, the deflection was of the variety I have classified as crest-shaped (Fig. 1), because the apex of its angle of convexity consisted of a sharp, cartilaginous ridge ascending upward and backward parallel to the anterior border of the vomer, but lying about three-eighths of an inch below it. This variety of deflection I regard as the fundamental deformity in nearly all nontraumatic deviations, the anatomic condition consisting of a curving over of the incisor and superior maxillary crests and the anterior portion of the vomer into the naris of the convexity, associated with an overriding of these bony parts

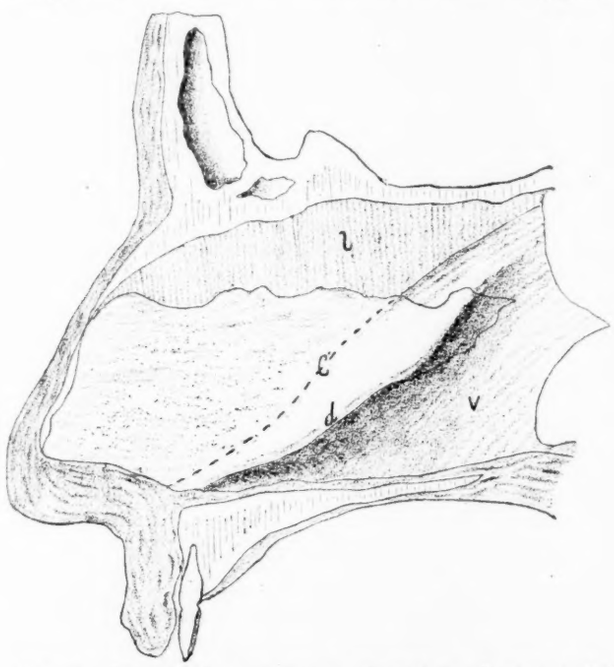

Fig. 1.—Lateral view of the nasal septum showing typical crest-shaped deflection with sharp cartilaginous crest. d: l, perpendicular plate of the ethmoid bone; v, vomer presenting convex surface of bony deflection towards observer; c, cartilage of the septum overriding the vomer downwards and backwards. The dotted line indicates the position of the anterior border of the vomer covered by the overlying cartilage. Drawn from specimen.

by an extension of the septal cartilage downward and backward, the lower limit of this cartilaginous extension forming the sharp crest referred to. It is this crest with a strip of the underlying bone which is so often sawed off, with but partial freeing of the patient's naris, while the more important obstruction due to the body of the deflection, of which the crest merely forms the sharp angle, is ignored. The cartilaginous strip mentioned is always found roughened on its inner surface where it is attached to the side of the bony septum, is present in most deviations of the nasal septum and has to be lifted off from the underlying bone before the latter can be found and resected. I regard the deviation in the bony septum as the main feature in the majority of non-

* Read in the Section on Laryngology and Otology of the American Medical Association, at the Fifty-ninth Annual Session, held at Chicago, June, 1908.

traumatic deflections, a bend in the cartilage being merely secondary to it and only made the most of in most operative procedures for the correction of deviations because its position in the front of the nostril makes it a striking condition, while the bony deviation, lying deeper in the naris, is often overlooked or else ignored because the operator thinks that he has done enough in resecting the cartilage or because he hesitates to enter into the difficult removal of the bone in the depths of the nostril. Nevertheless, the bony deflection is often the worst obstacle to breathing and if left will have to be taken away at a subsequent operation.

The retractors shown (Fig. 2) are for holding the naris open during the submucous resection as I perform it, the improvement consisting of the substitution of a smooth, rounded lip for the thinner, sharper edge

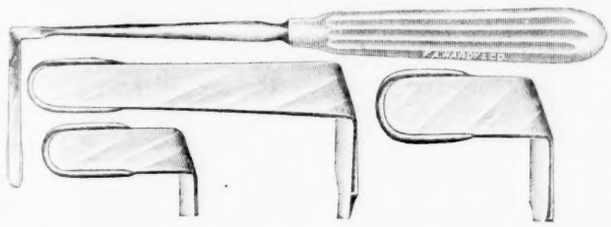

Fig. 2.—Freer's improved retractors for use in the submucous resection of the nasal septum.

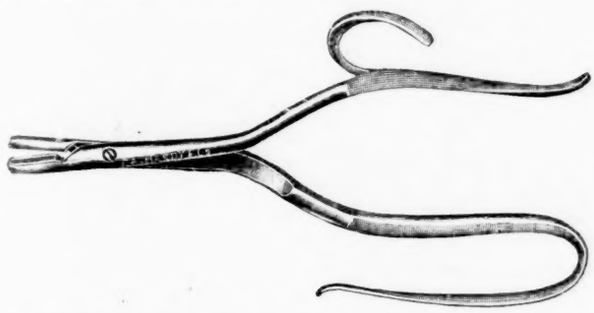

Fig. 3.—Freer's pernasal forceps for the removal of adenoid vegetations through the nose.

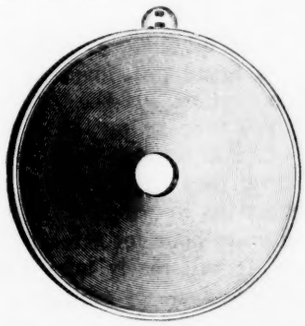

Fig. 4.—Short focus head mirror.

of the old style retractor which made it occasionally perforate the posterior flap on the side of the convexity of the deviation. In my method of operation three retractors are used for holding the nose open and I regard any form of nasal speculum as unsuitable for it.

The pernasal forceps (Fig. 3) for the removal of adenoid growths through the nose I use exclusively for the operation. I do not employ the curette at all and postnasal forceps only where a marked deviation of the septum makes it impossible to use the direct nasal route.

There are three sizes of the forceps, the slenderer one being used on infants. The elasticity of the septum in children, their comparatively broad nasal channels and the rudimentary condition of their turbinated bodies makes the passage of the forceps easy. I do not expect these forceps to supplant the curette in popularity, but recommend them to those who wish to be sure that all adenoid masses are removed from places inaccessible to the ring knife, such as the choanæ, the posterior wall of the pharynx, or the fossa of Rosenmüller.

The short focus head mirror (Fig. 4) also shown permits a nearer approach of the eye to the ear and nose than is possible with the common longer focus laryngeal reflector found in the shops, as it has a focal length of but 8 inches. Common reflectors focus about 14 inches.

DISCUSSION.

DR. J. F. BARNHILL, Indianapolis: It has for a long time been my opinion that the curette, if properly constructed, is the ideal adenoid instrument, for with it the operator is enabled to remove, in nearly every instance, the entire mass of adenoid at one sweep. Since there is only one individual mass in any one person's throat, the term adenoids should be dropped for the reason that it gives the impression that there is more than one growth to remove and that, therefore, the curette or other instrument must be introduced more than once in order to be thorough. There is never but one adenoid and hence if the operator selects a curette as wide as will snugly fit into the nasopharyngeal space, and then follows out a proper technic as to the direction of making the sweep, one such sweep will cut away the entire growth and there should be absolutely no necessity of making a second or third sweep with the instrument. I will admit that rarely some portion of the growth remains in the choanæ. When such is the case an instrument such as Dr. Freer has shown would undoubtedly be serviceable in removing it.

DR. E. FLETCHER INGALS, Chicago: Dr. Freer spoke of an eight-inch reflector. I want to emphasize what he said about the necessity of having a short focus. I do not use a six-inch focus, but think an eight-inch focus essential for ordinary work. It should be remembered that the distance from the eye to the larynx is eleven inches in ordinary cases, and we have to use a reflector of eight-inch focus in order to concentrate divergent rays on the larynx. In using an ordinary light we must have this short focus. In using condensers it is better to have the lens and light so set that the rays are divergent, so that the same focal distance can be used. For daylight or parallel rays the focal distance of the reflector should be ten or eleven inches. With a three and one-half inch or four-inch reflector it is quite important that the ball for the ball-and-socket joint should be only an inch and three-eighths from the center of the opening. In many that are sold it is two inches or more. The forceps for removing adenoids is essentially the same that I have used for fifteen or twenty years in removing masses of the adenoids from the choanæ, but I do not use them for the whole adenoid. I use MacKenzie's modification of Löwenberg's forceps. Dr. Barnhill suggests that with an ordinary adenotome Luschka's tonsil can be taken out with one sweep. A part of it can, but I think that the reason that there are 25 per cent. of recurrences is that the gland is not thus thoroughly removed. With this instrument the glandular tissue in the fossa of Rosenmüller is not taken out, and any portion pressing forward into the choana is also left. The forceps passed through the nose readily removes this mass and dilates any constriction of the choana. I once operated on a child, said to have adenoids, that had already been operated on by others three times for this condition. I found no adenoids but the choanæ were closed. Former operators had evidently confined themselves to scraping the nasopharynx. I had a little chisel made for operating on the septum, with a small guard that projects about 5 mm. from one side. This is about 1.5 mm. in diameter and has a small knob on the end designed to work under the mucous membranes without allowing the chisel to cut them. I have found this chisel especially useful in opening the sphenoid. The projecting guard is so small that it will readily enter the opening of the sphenoid cell and it can easily be directed with the finger in the nasopharynx when the patient is under an anesthetic. This prevents the chisel

from slipping or cutting too far back and thus enables one quickly to cut away the front wall and the sphenoid cell so that any of the instruments designed for enlarging the opening may be introduced.

DR. OTTO T. FREER, Chicago: In an article read before the American Laryngological Association in 1906 and published in its transactions and the Annals of Otology, December, 1906, I fully explained the efficiency of my pernasal forceps and the ring knife. I regard the certainty of removing all of the adenoid tissue, no matter where located, in the posterior nares or nasopharynx as the chief merit of the forceps. In contrast to their thorough work the ring knife or curette in its endless forms is very apt to do an incomplete operation. I have repeatedly employed my forceps for the removal of adenoid masses which had been left behind after curettement by operators of experience and reputation. The forceps referred to by Dr. Ingals is the Ingals nasal bone forceps. It was the prototype of the pernasal forceps which I now employ, which, however, I have changed materially in form in order to adapt it to the removal of adenoid growths. Dr. Ingals spoke of his nasal bone forceps in his clinics as passed by him through the children's noses mainly in order to dilate the posterior nares but also for the purpose of removing fragments of the adenoid growths, which the Löwenberg forceps, employed postnasally by Dr. Ingals as his chief implement for the operation, had failed to take away. I regard myself as justified in claiming to be the originator of the idea of removing all of the adenoid vegetations pernasally by forceps, for which purpose I at first used the Ingals nasal bone forceps and later my present pattern of pernasal adenoid forceps, which seem to me much better suited for the purpose. The straight route through the nose employed in the operation is the one employed by Wilhelm Meyer, and its advantages lie in the greater precision obtained in operating with a straight instrument without confusing curves and in the thoroughness with which the work can be done because of the guiding presence of the index finger of the left hand in the nasopharynx, which indicates every vestige of the growths by the sense of touch and in addition protects the tubal prominences and lateral walls of the nasopharynx from injury. Adenoid masses in the fossa of Rosenmüller and posterior nares, inaccessible to the curette can be readily plucked away with the forceps. I know that the short-focus head mirrors are nothing new. Nevertheless, for some reason they have disappeared from the shops and a mirror of long focus, about fourteen inches, is the only thing obtainable and, while suitable for laryngeal work, it does not permit sufficiently close vision for the nose and ear, so I had a short-focus reflector made for that purpose. I use the Kirstein head lamp nearly exclusively in my work and hardly ever employ a head mirror.

Therapeutics

CROTON OIL.

Oleum tiglii, U. S. P. (genitive, olei tiglii), is a yellow, somewhat viscid, fixed oil, expressed from the seeds of the fruit of a small tree which grows in Southern Asia and the Philippine Islands. The seeds contain from 30 to 40 per cent. of this oil. The oil contains glycerides of various fatty acids, crotonol (the vesicating croton resin), and crotonolic (or crotonoleic) acid (closely allied to oleic and recinoleic acid). The croton resin is soluble in alcohol.

Croton oil is burning and acrid in taste, and an irritant to the skin and mucous membranes. On the skin it produces redness, papules passing into vesicles, and finally into pustules, which in healing leave white scars. Croton oil has been classed, for this action on the skin, as a "pustulent." Occasionally it may cause a general eruption resembling smallpox. Sometimes enough has been absorbed from the skin to cause purging.

When taken internally, unless very dilute, it is irritant to the stomach and intestines. It congests the mucous membrane of the intestines and increases peristalsis, causing copious stools accompanied by griping pains and a good deal of burning and irritation of the rectum and anus. It acts rapidly, a drop or two on the tongue causing a stool in one or two hours.

Large doses cause violent purging, griping, vomiting and collapse, and a few drops have been known to cause death. If it has been taken by mistake, a quickly acting emetic is indicated, with later mucilaginous, soothing drinks and a hypodermatic dose of morphin. If it has been in the stomach long enough to cause severe purging, the treatment is that of acute enteritis, and the collapse should be treated as usual, with external heat and cardiac stimulants.

Croton oil is used when a quickly acting cathartic is indicated, especially when there is difficulty in causing the patient to swallow, and a rectal injection of a cathartic is inefficient or too slow. Consequently, croton oil is used in uremia and in the coma of apoplexy where it is deemed advisable to reduce the blood pressure by purgation. It has been used in the constipation of lead poisoning and in other obstinate constipation, but it should be used with great care lest intestinal obstruction be present. It may be used at times in the constipation of maniacal patients who refuse to take other medicine, as the dose of this is so small it can be more readily administered.

Croton oil may be used externally as a counterirritant, and has been used for this purpose on the chest in various conditions, such as bronchitis, the dry pleurisies of phthisis, and as a counterirritant over the course of a painful nerve. However, it is now rarely used externally, other counterirritants being better and their activities being better controlled. To do any good, croton oil must be used in considerable strength, and then the pustulations are rather beyond control and the scars caused by such pustulation are objectionable. If it is used externally it should be diluted with two or three parts of a bland oil.

The dose of croton oil is one or two drops, and is well administered in a bread pill, made at the time, if the patient is able to swallow. If the patient can not swallow, a drop or two may be put on a little granulated sugar and this put into the patient's mouth, or, if necessary, a single drop may be placed on the back of the tongue. In conditions in which it is indicated a drop may be repeated every hour for several doses until purging takes place. It will rarely take more than two or three doses. Minute doses of croton oil are sometimes added to laxative pills to make them more active. This is inadvisable, however, as the tendency, as previously stated, of irritant cathartics to either cause inflammation of the intestines or at least increase the tendency to constipation should preclude their use.

Croton oil should not be administered to children, to debilitated patients, or to pregnant women except in desperate cases of uremic poisoning. Also gastrointestinal inflammation or peritonitis should prohibit its use.

GRUELS.

As this is the season for intestinal disturbances, the medicinal and hygienic treatment of such disturbances can not be dissociated from the feeding and nutrition. Consequently a few suggestions from the book by Alida F. Pattee may not be amiss.

FLOUR GRUEL.

Milk ..... 1 cup.
Flour ..... ½ tablespoonful
Salt ..... a speck
Raisins ..... 1 dozen

"Scald the milk, mix the flour with a little cold milk and stir into the scalding milk. Cook in a double boiler for one-half hour or on back of stove in a saucepan. Stone and quarter the raisins, then add water enough to cover; cook slowly until the water has all boiled away; add to gruel just before serving, or eat with the raisins as desired. If there is much diarrhea the raisins should be left out."

BARLEY GRUEL.

Barley flour ..... 2 tablespoonfuls
Milk, scalded ..... 1 quart
Salt.

"Blend the barley flour with a little cold milk and stir into the scalding milk. Cook in a double boiler two hours, salt to taste, and add sugar if desired; strain."

BARLEY GRUEL WITH BROTH.

Beef broth ..... 2 cups
Barley flour ..... 2 tablespoonfuls
Cold water ..... 2 tablespoonfuls
Salt ..... 1 saltspoonful

"Mix barley flour and salt with the cold water to form a smooth paste. Add gradually to the boiling stock and boil one-half hour. Strain and serve very hot.

EGG AND SHERRY GRUEL.

Egg 1
Sherry ..... 1 wineglassful
Lemon juice ..... 1 teaspoonful
Sugar ..... 1 tablespoonful
Grated nutmeg.
Smooth hot gruel ..... 1 cup

"Beat the egg, add wine, lemon juice and nutmeg, and pour on the hot gruel."

ARROWROOT GRUEL.

Arrowroot ..... 2 teaspoonfuls
Cold water ..... 2 tablespoonfuls
Boiling water or milk ..... 1 cup
Salt.
Sugar, lemon juice, wine or brandy as required.

"Blend the arrowroot and cold water to a smooth paste, add boiling water or milk and cook in a double boiler for two hours. Add salt, strain, and serve hot."

Both the barley and arrowroot may be administered in diarrhea.

INDIAN MEAL GRUEL.

Indian meal ..... 1 tablespoonful
Flour ..... ½ tablespoonful
Salt ..... ¼ teaspoonful
Cold water ..... 2 tablespoonfuls
Boiling water ..... 1½ cups
Milk or cream.

"Blend the meal, flour and salt with the cold water to make a smooth paste and stir into the boiling water. Boil on back of stove one and one-half hours, dilute with milk or cream, strain."

RICE GRUEL.

Rice flour ..... 1 tablespoonful
Cold water ..... 2 tablespoonfuls
Boiling water ..... 1 quart
Salt.

"Mix the rice flour with a little cold water to form a smooth paste, add the boiling water, and cook in a double boiler until transparent and thoroughly cooked. Add salt to taste, sweeten, and add milk if desired; strain."

OATMEAL GRUEL.

Coarse meal ..... ¼ cup
Salt ..... ½ teaspoonful
Boiling water ..... 1½ cups
Milk or cream.

"Add oatmeal and salt to the boiling water, cook four or five hours in a double boiler, adding more water if necessary. Strain, and dilute with hot milk to make it of the right consistency. Re-heat and serve. Sugar and a little port wine may be added if desired."

FARINA GRUEL.

Farina ..... 1 tablespoonful
Cold water ..... 1 tablespoonful
Boiling water ..... 1 cup
Scalded milk ..... 1 cup
Salt.

"Mix the farina with the cold water, add to the boiling water and boil thirty minutes. Add the scalding milk, taste and season properly. A little sugar may be added if desired, or an egg may be beaten and the gruel added to it."

BROWNED FLOUR GRUEL.

"Tie one-fourth pound of wheat flour into a thick cloth and boil it in a quart of water for three hours. Remove the cloth and expose the flour to the air, or heat it until it is hard. Grate from it when wanted a tablespoonful, put into a half pint of new milk, and stir over the fire until it comes to a boil, add a pinch of salt and a tablespoonful of cold water, and serve. This gruel is excellent for children with simple diarrhea."

FOR TOOTHACHE.

The *Druggists Circular*, March, 1908, gives the following suggestions for applications for toothache:

℞ c.c.

Creasoti,
Chloroformi,
Olei caryophylli,
Olei menthæ piperitæ,
Olei camphoræ,
Phenolis liquefacti, āā ..... 5 | or | āā, fl℥i

M. et sig.: Apply on cotton or pledgets of felt.

Or,

℞ gm. or c.c.

Phenolis liquefacti ..... 5 | fl℥ii
Camphoræ ..... 10 | or | ℥ss
Chloroformi ..... 25 | fl℥i
Olei cajuputi, q. s. ad ..... 50 | ad, fl℥ii

M. et sig.: Apply on cotton or pledgets of felt.

Or,

℞ gm. or c.c.

Phenolis liquefacti ..... 60 | fl℥ii
Mentholis,
Thymolis, | or | āā, gr. xv
Collodii, āā ..... 1 | m. xv

M. et sig.: Jelly for toothache.

Or,

℞ gm. or c.c.

Phenolis liquefacti ..... 3 | m. xlv
Capsici,
Pulveris opii, āā ..... 4 | or | āā, 3i
Olei caryophylii ..... 8 | fl℥ii
Chloroformi ..... 75 | fl℥iiss

M. et sig.: Toothache tincture.

FOR LOCAL SWEATING IN TUBERCULOSIS.

℞ gm. or c.c.

Mentholis ..... 2 | 3ss
Acidi salicylici ..... 4 | or | 3i
Spiritus lavandulæ ..... 200 | fl℥vi

M. et sig.: Sponge the affected regions with the solution.

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[For other information see second page following reading matter]

SATURDAY, JULY 18, 1908.

SUICIDE AND PROPHYLAXIS.

In recent years the problem of suicide has come to be looked on as a medical question, and this makes for real understanding of the situation as well as furnishing the best possible hope of its amelioration. It becomes important under these circumstances for the physician to know just what the situation with regard to suicide in this country is. In a recent article Mr. George Kennan[1] has collected some valuable statistics that are probably the most authoritative figures on the subject at present obtainable and which, therefore, deserve consideration. Our annual suicide loss is enormous, for, according to Kennan, we are losing every year from this cause more than were killed on the Union side in the three great battles of Gettysburg, Spottsylvania and the Wilderness taken together.

The serious phase is that for twenty-five years the annual suicide rate has increased with large strides. In 1881 the rate in the United States was but 12 per 1,000,000 of the population and our total number of suicides in the whole country was only 605. Last year it had risen to 126 per 1,000,000 and our suicides numbered 10,782. If the present rate of increase be maintained—and there seems to be no reason that it should not be—we shall lose by suicide in the next five years nearly as many lives as were lost by the Union armies in battle in the five years of the Civil War. Since 1890 suicide has cost the United States over 120,000 lives. It is true that European countries have lost even more than we have, but far from being encouraging, this only adds to the blackness of the situation.

Certain features of the suicide situation deserve special attention. It has been asserted that the depression which accompanies dark days or prolonged periods of lack of sunshine is responsible for many self-murders. Three of the best authorities on the subject, however—Dr. Geck of Strasburg, who collected the statistics of about 100,000 suicides that took place in Prussia in the twenty years from 1876 to 1896; Durkheim of Paris and Dr. Gubski of St. Petersburg, who have investigated the subject more recently for the whole of Europe—assert that suicides invariably attain their maximum in June and their minimum in December. Geck found a constant rise in the suicide curve from January to the end of June and a constant decline from June to the end of the first winter month. This does not mean, however, that climate is as important an element in suicide as it might seem to be, for it is not in the torrid zone but in the temperate zone that the highest suicide rate is reached. The maximum of 172 suicides annually to each 1,000,000 of inhabitants occurs between the parallels of latitude 50 and 55 in the north temperate zone—that is, just where climate is most salubrious and least annoying.

Perhaps the most interesting phase of this question of the relation of the weather to suicide is that advanced by Prof. Edwin G. Dexter.[2] He found by a comparison between the dates of nearly 2,000 cases in the city of New York and the records of the New York weather bureau on the days for which these suicides occurred, that not only is the tendency to suicide greatest in the spring and summer months, "but it is most marked on the clearest, sunniest and pleasantest days of these months. The clear dry days show the greatest number of suicides and the wet, partly cloudy days the least; and with differences too great to be attributed to accident or chance."

One other curious feature is that in times of stress the suicide rate always drops. During war time suicides are much less frequent than in peace. Other forms of stress, however, have the same favorable influence. Before the earthquake at San Francisco the suicides of that city averaged twelve a week. After the earthquake, when the whole population was homeless, destitute and exposed to hardships of every kind, there were only three suicides in three months. The decrease in the suicide rate was more than 97 per cent.

The all-important question for us is: What can be done to prevent the further increase of suicide? There are probably only two remedies practically available. The most important of these is, undoubtedly, the prohibition of the publication of the details of suicides, for this inevitably tends to suggest to certain weaker minds the imitation of the act described. This influence of suggestion due to the reading of the details of suicides is now generally recognized by those who have studied the question most and we feel sure is much more important than is sometimes thought. We unhesitatingly say that at least one-third of all suicides have some imitative element in them. Hence if we could secure the absolute prohibition of the publication of suicide details—the fact but not the manner might still be reported—and in addition could make it generally understood that suicide is a disease to be prevented and not a crime to be condoned or condemned, we doubtless would be able to do much to reduce the appalling increase in the suicide rate which is such a lamentable blot on recent social statistics.

1. Problems of Suicide, McClure's Magazine, June, 1908.

2. Popular Science Monthly, April, 1901.

RELATION OF EDUCATION TO PREVENTIVE MEDICINE.

The triumphs of preventive medicine are a matter of just pride to the medical profession. But while we may congratulate ourselves on what has already been accomplished, we must admit that much remains to be done. Considered in the light of what is possible, that which has been done is so far behind what might have been done as to constitute after all an occasion rather for regret, coupled with a stimulus to renewed and greater effort, than for self-gratulation.

This aspect of the question is emphasized by an extensive monograph by Dr. N. E. Ditman[1] on "Education and Its Economic Value in the Field of Preventive Medicine," in which he urges the need of a school of sanitary science and public health. The present problems of the public health and of sanitary administration involve much more than a knowledge of bacteriology or the physical causes of disease. Politics, sociology and morality are all concerned. Effective measures for removing the causes of disease can be carried out only with the support of an enlightened public opinion, and this must be formed by education. As the activities of the physician — the natural educator of the public in such matters — have heretofore been directed mainly along the lines of curative medicine, he is often ill-prepared for the new duties thrust on him by the demands of modern sanitation. This education of the public, to be efficient, will necessitate in many instances a postgraduate education of the practicing physician, and also provision for a training of the medical student in sanitary science superior to that hitherto in vogue.

As for specialization in sanitary work among the members of the medical profession, the time must come when one who undertakes the functions of a health officer will be required to show evidence, either in the form of a diploma or otherwise, of special training. In Great Britain such diplomas have now for some years been granted by nearly all the universities and are an essential prerequisite, in most instances, for appointment as medical officer of health; nor is Great Britain alone in this. Some such qualification should be required here. Again, teachers in public schools and higher institutions of learning have excellent opportunities for imparting instruction regarding health and its relation to economics and social problems, and they must form an important agency in securing the proper basis for efficient sanitary action by public officials. It is vastly important, therefore, that all these classes should receive appropriate training. This can best be afforded by a school whose instructors are in close touch with the methods and aims of sanitation as represented by the advanced thought of the medical profession.

Philanthropic and social workers also need such an education, while the ministry, the legal profession, the prospective statesman and the public in general should all receive instruction, suited to their respective needs, concerning the varied relations of disease to morals, crime, poverty, and economic questions. The needs of this class could be adequately met by special courses of instruction, both at the proposed school and in other large centers by lecturers appointed by, and under the control of, the school.

Ditman suggests that such a school should be in connection with a university having a well-equipped medical department and ample opportunities for scientific demonstration and research. It should be situated in a large city to afford practical illustrations of health department methods and of the various forms of unsanitary environment. It should provide a wide range of courses suited to the needs of its various classes of students, certain of which courses might well be required of applicants for a degree in the university. Ditman gives a list of thirty-five subjects adapted to this end, and the number of courses might easily be multiplied.

The great value of such a school will readily be admitted. There are opportunities for the establishment of several such in the United States. The economic results of the reduction of sickness and death thus made possible ought to be sufficient reason for establishing them, not to mention the higher interests served by the alleviation of suffering and the promotion of morality.

1. Columbia University Quarterly, June, 1908, x, No. 3, supplement.

NATIONAL DEPARTMENT OF PUBLIC HEALTH.

The Democratic National Convention adopted a plank in its platform endorsing the organization of all existing national public health agencies into a national bureau of public health. The Republican National Convention adopted a similar, but less specific plank on the same subject. With both of the leading political parties committed by their platform declarations to advance legislation along sanitary lines, there should be no difficulty in securing the introduction and consideration of a bill in Congress in the near future for an adequate national health bureau or department.

Recent advances in scientific medicine; public recognition of sanitary victories, such as the stamping out of yellow fever in New Orleans and Havana and the suppression of the bubonic plague in San Francisco; greatly increased public interest in health matters, as shown by the successful campaigns for pure food and against dangerous drugs; the increasing desire of the people for trustworthy information on all health topics, as shown by recent articles in the popular magazines, all combined with the epoch-making reorganization of the medical profession, unite to form an incentive to a popular movement for a national health organization such as has not heretofore been possible. The exact manner of organization, whether as a bureau or as a department; the question of a cabinet officer versus a bureau chief; the alternatives of the immediate organization of a new department or the gradual expansion of existing bureaus,

all are subordinate to the general purpose of such a movement—the conservation of the lives and health of the people. The time is ripe for action, and the people are ready to support the movement.

To be successful, however, there must first be a careful study of all the conditions involved. It is no credit to our profession that we frequently approach legislators, urging the adoption of bills that are hastily and carelessly prepared without adequate understanding of the problems involved or of laws already existing. It sometimes happens, too, that a bill as drafted represents the prejudices or personal views of one or two men rather than the accumulated experience of the entire profession. It is time for us to realize that if we wish to be recognized as having a right to participate in law making and governing we must show ourselves worthy of such privileges. If we wish the support of law makers and law administrators, we must show that we can draft sound laws on broad principles. A bill for the establishment of a national department of health should not be drawn until accurate knowledge has been obtained regarding all national health agencies now existing, not only in this but in other countries. The practical and legal relations now existing between present health agencies, both state and national, should also be carefully studied, as well as the relation which the proposed bureau will bear to all our other executive and administrative departments. The cooperation of all existing public health and sanitary forces should, so far as possible, be enlisted. Above all, personal prejudices and animosities should be entirely discarded and the health of the public should be considered above all else.

If wisdom and tolerance be observed and careful investigation and public education precede the presentation of the bill, it will have the support of all parties and of all factions. An unprecedented opportunity now presents itself for the profession to show a spirit of broad and constructive statesmanship.

NOTABLE ANTITUBERCULOSIS LEGISLATION.

New York State has just passed a law declaring tuberculosis to be an infectious and communicable disease and providing for the reporting of all cases to the local health authorities. Its salient features comprise the free examination of sputum by the health authorities in all suspected cases; registration and the inviolability of all such records; the disinfection and renovation of premises after the death or removal of a consumptive, and the rendering innocuous of all tuberculous sputum. The physician must send to the health officer of his community a statement of the precautions he takes in a case of this disease; he must safeguard in every reasonable way those living in the same house with the consumptive patient; and for his report he receives a fee of $1.00. Should the physician fail to report, this duty devolves on the health officer, who will then receive the fee. Penalties[1] are imposed on physicians and others who fail to execute the duties required by this act.

All the measures incorporated in this law have become commonplaces of sanitary requirement, and they well epitomize the essential prophylaxis against tuberculosis. A positive finding in sputum examination places the diagnosis of the disease beyond question, but surely no physician will to-day wait for such evidence before reaching a conclusion. The disease has usually passed well beyond incipiency before bacilli are discoverable in the sputum. Of all the steps toward communal protection registration is by far the most important; no adequate disinfection or renovation of premises is possible otherwise.

This New York state law was signed at about the same time as a similar statute for the District of Columbia to which the President has affixed his signature. In preparing the New York law those now in operation in Vermont, New Hampshire and Wisconsin were carefully considered; much was derived from them, from the sanitary code of New York City, and from the new federal law. A wise disposition is here being shown by government and humanitarian bodies to make observations and concessions, dictated, as Secretary Root notes, "by enlightened judgment for the common benefit." We may confidently hope that all our states will presently have similar statutes in force.

THE HEALING OF EXPERIMENTAL TUMORS BY TRANSFUSION OF BLOOD.

There occurs occasionally on the generative organs of dogs, and transmitted by coitus, a peculiar form of tumor that is generally designated as a lymphosarcoma, but concerning the actual nature of which there has been some difference of opinion. The readiness with which it can be transplanted from dog to dog, either experimentally or through coitus, makes it seem much more like an infective granuloma than like the true malignant tumors; but most of the more recent observations seem to indicate that this growth really is a lymphosarcoma which, as the result of repeated natural implantation through coitus, has become adapted in a high degree to this method of propagation. Although this is merely a canine disease, yet its proper classification becomes an important matter because of the use to which it is being put in connection with the experimental study of tumors, along with the transplantable carcinomas of mice and sarcomas of rats. The newest observations on the transplantable lymphosarcoma of dogs, by Crile and Beebe, are of particular interest because they demonstrate a method by which these growths can be made to disappear and leave the animal immune and well.

All the transplantable tumors so far studied in lab-

1. THE JOURNAL A. M. A., May 30, 1908, p. 1804.

oratory animals show a tendency to spontaneous retrogression, which feature might seem to indicate that they are essentially different from the malignant tumors occurring in man which are remarkable rather for the absence of any such desirable tendencies. However, this difference is perhaps rather apparent than real, depending on the fact that spontaneous tumors developing in man appear only in individuals in whom conditions favor the formation of neoplasms, while in the experimental tumors inoculations are made into normal animals that are entirely free from any such tendency to tumor formation, and which are possessed of a certain degree of natural immunity.

Be that as it may, it is an important fact that animals thus recovering spontaneously are immune to further inoculation with tumors, and their blood contains substances which inhibit tumor growths; these observations made by Gaylord and Clowes, and at first disputed by Bashford and Ehrlich, are now generally accepted in view of their abundant corroboration. Basing their experiments on these facts, Crile and Beebe[1] found that if an animal with progressing tumors were bled freely and then transfused with a considerably larger amount of blood from a dog immune to such tumors, the growth of the tumors was usually checked and they soon underwent complete absorption. These results were much the same whether the immunity of the dog furnishing the blood was evidenced by an insusceptibility to inoculation with tumors or was an acquired immunity manifesting itself by spontaneous retrogression of tumors that had been growing for a time. The authors consider that immunity to tumors is not strictly analogous to bacterial immunity. Nevertheless their results show that it is to some extent a blood condition which may be transferred to another animal, rendering it passively immune.

Interesting and suggestive as these experiments are, Crile and Beebe wisely refrain from any premature speculation as to their application to the treatment of human tumors, a subject that must be first approached only after a more extensive experience with animals has been obtained.

1. Jour. Med. Research, 1908, xviii, 385.

THE INDEX TO CURRENT LITERATURE.

When, in our issue for June 27, we appealed to our readers for an expression of their views with reference to the continuance of the Index to Current Medical Literature we realized that we were asking a good deal, in view of the season of the year and other factors, in calling for at least 500 replies. So also, apparently, thought many of those who wrote promptly in their anxiety to avert a threatened discontinuance, for they begged us to be content with less than the specified number of replies. It is, however, most gratifying to learn that the appreciation of the labor involved in the Index to Current Medical Literature is both widespread and deep. The number of those who have responded to date is 586—and communications are coming in every mail—and of these only nine appear indifferent or half-hearted. Practically all beg us not to think of discontinuing the index, which large numbers seem to consider almost, if not quite, the most valuable feature of THE JOURNAL. This hearty response, moreover, besides effecting its purpose of dispelling any idea of abandoning the Index to Current Medical Literature, has had the effect also of stimulating to greater effort that portion of the editorial staff on whom the responsibility and labor fall. We thank most heartily all those who have replied to our questions, especially those who have offered suggestions for improvement. These suggestions are being carefully considered, and we assure our readers that if any change is made it will be toward making the index more useful and more practical.

MEDICAL COLLEGE MERGERS.

Last week we announced the merger at Cincinnati of the Miami Medical College and the Medical College of Ohio which promises so much for the future of medical education in that city and state. This is the eleventh merger of medical colleges which has taken place in less than three years, during which time twenty-three of these institutions have united their forces, leaving nine larger and stronger ones. In Indiana five colleges have finally been welded into one, in Kansas four were merged into one, and in Kentucky four into two, while in Missouri, in Ohio at Columbus, in Minnesota, and now again in Ohio at Cincinnati, two colleges in each instance merged into one. In every instance these mergers have registered a desire on the part of the faculties for higher educational standards, and the manner in which personal interests have been set aside that better institutions might result has revealed a magnanimity, an unselfishness and a public spirit that are most encouraging and commendable. It is this spirit which shows that the medical profession of this country will not be content until medical education in the United States is second to that of no other nation. There remain several other cities having from two to five separate colleges where mergers similar to the above are being contemplated. In some of these a strong public spirit already prevails and positive action will not be long withheld. It is evident that the merging of our numerous small and poorly equipped medical colleges into a less number of well-equipped and strong institutions is the most encouraging part of the movement for higher standards of medical education in the United States.

Hot Horse Serum in Treatment of Burns.—R. Petit's communications on the efficacy of hot horse serum in local treatment of wounds have been summarized in these columns from time to time. He now announces that it is proving the best topical application for extensive burns. The *Presse Médicale*, June 13, quotes some of his case histories, showing that healing was much more rapid in the burns treated with the hot horse serum than in other burned patches on the same child treated with picric or boric acids, etc. He believes that the horse serum revives the injured cells, possibly including the nerve cells, so that they recuperate and aid in the healing process, instead of dying and generating poisons. The serum also summons the leucocytes to the spot, while its harmlessness has been demonstrated.

Medical News

ILLINOIS.

Free Treatment of Hydrophobia.—Dr. J. A. Egan, secretary of the Illinois State Board of Health, requests us to announce, for the information of physicians and health officers, that in 1905 the General Assembly made provision for the care and treatment of poor persons duly certified by regular physicians to have been bitten by rabid animals, or otherwise put in danger of infection from hydrophobia, and that such persons unable to pay for treatment themselves will be cared for at the expense of the state, at the Pasteur Institute, 228 Dearborn Avenue, Chicago, the institution selected by the Illinois State Board of Health.

Chicago.

Medical College in Good Standing.—We are informed by the Illinois State Board of Health that owing to a clerical error, the College of Medicine and Surgery, Physio-Medical, was omitted from the list of colleges in good standing, sent to us last week.

Chicago's Health.—According to the bulletin of the Chicago Department of Health, the city's health was never better than during the week ended July 11. The average death rate of the last ten years was 14.21 per thousand; the rate of the first eleven days of the present month was 10.88. Had the average rate of previous years obtained there would have been 928 deaths during the eleven days instead of the 710 which did occur. To the total of 510 deaths reported during the week ended July 11, violence contributed 62—a greater number than any of the diseases; consumption was second in order of highest mortality, with 57 deaths; the diarrheal diseases, 52; nephritis, 42; heart diseases, 40; pneumonia, 36; cancer and the nervous diseases, each 28. There was but one death from typhoid fever reported, as against 7 in the week preceding and 5 in the corresponding week of last year. A death from tetanus was recorded during the week, but not due to a Fourth of July injury.

Mortality of Chicago During the First Half of 1908.—According to the statistics of the Department of Health, 1,998 fewer people died during the first six months of 1908 than during the corresponding period of last year. The diseases in which the greatest improvements in the mortality rate is shown are pneumonia and pulmonary tuberculosis; the actual decrease in the number of deaths from pneumonia is 949, from tuberculosis is 174. On the other hand, deaths from diarrheal diseases in children have increased, especially in children under one year, the increase over last year being 183. June had the very low general death rate of 11.77 per thousand of population. This is 6.5 per cent. lower than the ten-year average for June and 13.4 lower than June, 1907. In the last fifty years there have been but two Junes with a lower rate. The total deaths reported during the month—2,095—were 348 fewer than the preceding month and 260 less than the returns of June, 1907. Of the diseases which show the greatest reduction, pneumonia leads, with 103 fewer deaths than the preceding month and 133 fewer than the corresponding month of last year. There were 24 fewer deaths from consumption than in the preceding month and 12 fewer than the compared period of 1907. The reduction in contagious diseases similarly compared was 27 and 42. A marked increase is noted in deaths from diarrheal diseases. The 153 deaths reported during the month exceed the preceding month by 22 and the corresponding month of last year by 38.

INDIANA.

Sex Relation and Social Hygiene.—At a recent meeting of Marion County Medical Society, resolutions were adopted, setting forth that it would be wise to teach young people, with seriousness and dignity, the facts about reproduction and the almost certain evil effects of unchastity.

Itinerant Physicians.—The common council of Logansport has passed an ordinance providing for a license fee of $50 per day for itinerant physicians or traveling vendors of drugs or remedies, the violation of the ordinance to bear a penalty or fine not less than $50 nor more than $100 for the first offense, and for not less than $50 nor more than $300 for each subsequent violation.

Officers and Faculty of Medical School.—At a meeting of the board of trustees of the Indiana University, held in Bloomington June 23, the following officers and faculty for the school of medicine were selected: Dr. Allison Maxwell, dean; Dr. Edward F. Hodges, vice-dean; Dr. Edmund D. Clark, secretary; Dr. John S. Barnhill, treasurer, and B. D. Meyer, secretary of the medical department. Drs. Henry Jameson, Allison Maxwell and George W. McCaskey, professors of medicine; Drs. Louis Burkhart, Samuel E. Earp, George D. Kahlo, Theodore Potter, and Albert C. Kimberlin, clinical professors of medicine; Drs. Francis D. Dorsey and Robert H. Ritter, associate professors of medicine; Dr. Frank B. Wynn, professor of medical diagnosis; Dr. William T. S. Dodds, associate professor of clinical diagnosis; Dr. Simon P. Shearer, professor of gastrointestinal diseases; Dr. L. Park Daryer, professor of pediatrics; Drs. James H. Taylor and John A. Lambert, clinical professors of pediatrics; Dr. Amelia R. Keller and Dr. Oscar N. Torian, associate professors of pediatrics; Drs. Frank F. Hutchins, Ernest C. Reyer and Albert E. Sterne, professors of mental and nervous diseases; Drs. Charles S. Neu and Robert N. Todd, associate professors of nervous and mental diseases; Drs. William H. Foreman and C. Richard Schaefer, professors of therapeutics; Dr. Thomas W. Haas, associate professor of therapeutics; Dr. John N. Hurty, professor of hygiene and sanitary science; Dr. Samuel C. Norris, associate professor of hygiene and sanitary science; Drs. James H. Ford, John H. Oliver and Miles F. Porter, professors of surgery; Drs. Edmund D. Clark, J. Rilus Eastman and George M. Wells, professors of clinical surgery; Drs. Maynard A. Austen and David Ross, associate professors of surgery; Dr. Horace R. Allen, professor of orthopedic surgery; Drs. William N. Wishard and John A. Sutcliffe, professors of genitourinary surgery; Drs. Frederic R. Charlton and Harvey A. Moore, clinical professors of genitourinary surgery; Drs. George J. Cook and John C. Sexton, professors of gastrointestinal surgery; Drs. Alois D. Graham and Thomas C. Kennedy, clinical professors of gastrointestinal surgery; Drs. Walter S. Given and Homer H. Wheeler, associate professors of gastrointestinal surgery; Dr. Alembert W. Brayton, professor of dermatology and syphilology; Drs. Albert M. Cole and E. Oscar Lindermuth, professors of electrotherapeutics and dermatology; Drs. Albert E. Bulson, Thomas C. Hood and Frank A. Morrison, professors of ophthalmology; Drs. Harry C. Parker and Frederic C. Heath, clinical professors of ophthalmology; Drs. John S. Barnhill, Lewis C. Cline, John I. Kyle, and Kemp K. Wheelock, professors of otology, laryngology and rhinology; Drs. John L. Masters, Lafayette Page and Ernest DeW. Wales, clinical professors of otology, laryngology and rhinology; Dr. Orange G. Pfaff, professor of gynecology; Drs. Thomas E. Eastman, Thomas B. Noble and Hugo Pantzer, clinical professors of gynecology; Drs. Bernays Kennedy and Robert O. McAlexander, associate professors of gynecology; Drs. John T. Davis, Sidney J. Hatfield, David Tahn, Goethe Link, and John Pfaff, associate professors of gynecology; Dr. Edward F. Hodges, professor of obstetrics; Dr. Charles E. Ferguson, clinical professor of obstetrics; Dr. Henry F. Beckman, associate professor of obstetrics; Dr. Charles S. Neu, professor of pathology; Dr. John W. Fluss, professor of anatomy; Drs. John Morris, Norman E. Jones, Walter W. Barnett, W. B. Robinson, and Charles O. Durham, associate professors of anatomy; Drs. Gustave A. Petersdorf and Charles S. Woods, professors of chemistry, and Dr. William O. Gross, professor of toxicology.

IOWA.

Personal.—Dr. H. J. James, formerly assistant physician at Muskoka Cottage Sanatorium, Canada, has been appointed assistant superintendent at the State Sanatorium for Tuberculosis, Oakdale.

Epidemic Diseases.—An epidemic of German measles is reported from Sloan.——Smallpox is reported to be prevalent in Washington Township, Atlantic County.——The secretary of the University Y. M. C. A., Iowa City, was stricken with smallpox, June 3. The building has been closed and fumigated.——Two cases of smallpox, said to be imported from Missouri, are reported in Davenport.——Rockwell City is reported to have 57 cases of typhoid fever, with 5 deaths.

Medical Society Meetings.—At the annual meeting of the Central Iowa Medical Association, held in Nevada, June 16, the following officers were elected: President, Dr. Alpheus A. Deering, Boone; vice-president, Dr. John W. Bailey, Nevada, and secretary-treasurer, Dr. James C. Walker, Boone. The next meeting will be held at Boone.——At the semi-annual meeting of the Iowa Union Medical Society, held in Iowa City June 23, the following officers were elected: President, Dr. L. Wallace Dean, Iowa City; vice-president, Dr. William R. Whiteis, Iowa City; secretary, Dr. Alexander Crawford, Mount Vernon; treasurer, Dr. George P. Carpenter, Cedar

Rapids, and censors, Drs. Edwin Burd, Lisbon, John W. Lagrange, Marion, and Hollis W. Bender, Cedar Rapids. The next meeting of the society will be held in Cedar Rapids.——The thirty-seventh annual meeting of the Des Moines Valley Medical Association was held in Ottumwa June 18 and 19. The following officers were elected: President, Dr. Lewis A. Rodgers, Oskaloosa; vice-presidents, Drs. Frank T. Stevens, Mount Pleasant, and Charles B. Powell, Albia; secretary-treasurer, Dr. Fred W. Bowles, Ottumwa, and censors, Drs. Smith A. Spilman, Ottumwa, Henry C. Young, Bloomfield, and Clyde A. Boice, Washington. The next meeting will be held in Ottumwa.

MARYLAND.

Medical Student Dies Just Before Graduation.—William George Thomas died at Cumberland, Md., May 7, of tuberculosis, five days before his graduation from the Southwestern Homeopathic College, Louisville, aged 24.

Baltimore.

Personal.—Dr. Leo G. Scheurich, a recent graduate of the medical department of the University of Maryland, was given a banquet by the Holy Cross Lyceum and presented with a case of pocket instruments, July 9.——Dr. Cary B. Gamble has been appointed a member of the board of supervisors of city charities.——Dr. Henry Kenwood has gone to Bedford Springs, Pa., as resident physician for the season.——Dr. James H. Chestnutt of the Johns Hopkins Hospital staff was operated on for appendicitis July 10.——Former internes of the University Hospital have located as follows: Dr. G. W. Billupo, chief resident surgeon, Woman's Hospital, Baltimore; Dr. Joseph L. Valentini, Baltimore; Dr. Charles W. Roberts, southern Georgia; Dr. E. W. Glidden, Savannah, Ga.; Dr. Thomas Legg, western Maryland; Dr. Joseph A. Barry, New York; Dr. Salvador Giuliani, Viegues, Porto Rico; Dr. Rufus C. Franklin, Craymount, Ga.

MASSACHUSETTS.

Course in Psychotherapy.—Tufts Medical School announces it will add to its curriculum a course in psychotherapy, beginning October 1, in charge of Dr. Morton H. Prince and Rev. Albert E. Shields.

Alumni Meetings.—The fourth annual dinner and meeting of the New England Association of Jefferson Medical College Alumni was held in Boston, when Dr. John Q. A. McCollister, Waltham, of the class of 1856, was elected president; Dr. Angus McOdrum, Boston, of the class of 1889, secretary, and Dr. Henry J. Walcott, Concord, of the class of 1890, treasurer.——At the annual meeting of the Harvard Alumni Association, held June 23, Drs. Vincent Y. Bowditch, Boston, of the class of '79; Henry F. Lewis, Chicago, of the class of '88; and Malcolm Storer, Boston, of the class of '89, were elected to fill vacancies in the council.

Society Meetings.—At the annual meeting of the Barnstable District Medical Society at Hyannis, the following officers were elected: Dr. Stephen H. Sears, Yarmouth Port, president; Dr. Henry B. Hart, East Dennis, vice-president; Dr. John P. Nickerson, West Harwich, secretary; Dr. William D. Kinney, Osterville, treasurer; Dr. Ephraim Cutter, West Falmouth, librarian; and Dr. James H. Higgins, Marston's Mills, trial committee.——At the annual meeting of the Hampshire District Medical Society, held in Northampton, Dr. Worthington W. Miner, Ware, was elected president; Dr. Frank H. Smith, Hadley, vice-president; Dr. Arthur G. Minshall, Northampton, secretary; Dr. Alfred H. Headley, Northampton, treasurer; and Dr. Edward W. Brown, Northampton, librarian.——Worcester District Medical Society, at its annual meeting, elected the following officers: Dr. William G. Reed, Southbridge, president; Dr. Lemuel F. Woodward, Worcester, vice-president; Dr. George E. Emery, Worcester, secretary; Dr. George O. Ward, Worcester, treasurer; Dr. Michael F. Fallon, Worcester, orator; and Dr. Ernest V. Scribner, Worcester, commissioner of trials.——At the annual meeting of the Essex South District Medical Society, held in Salem the following officers were elected: Dr. Snow P. F. Cook, Gloucester, president; Dr. Frederic W. Baldwin, Danvers, vice-president; Dr. George K. Blair, Salem, secretary; Dr. George Z. Goodell, Salem, treasurer; Dr. Carolus M. Cobb, Lynn, librarian; and Dr. Ralph E. Bicknell, Swampscott, commissioner of trials.——At the meeting of the Bristol South District Medical Society, held in Fall River, the following officers were elected: Dr. William T. Learned, Fall River, president; Dr. Augustus H. Mandell, New Bedford, vice-president; Dr. Alanson J. Abbe, Fall River, secretary-treasurer; and Dr. George L. Richards, Fall River, commissioner of trials.——Franklin District Medical Society, at its annual meeting, held in Greenfield, reelected the following officers: Dr. John W. Cram, Colerain, president; Dr. Charles L. Upton, Shelburne Falls, vice-president; Dr. Clara M. Greenough, Greenfield, secretary-treasurer; and Dr. Frances E. Johnson, Erving, commissioner of trials.

MICHIGAN.

Antituberculosis Charity Fund.—As a result of contributions in Detroit on Tuberculosis Charity day, a grand total of $11,274.99 was received.

Graduating Exercises.—The graduating exercises of the American Medical Missionary College were held at the Battle Creek Sanitarium, June 17, when a class of four was graduated. The address to the graduating class was delivered by Rev. Robert H. Nassau, M.D., a veteran missionary from West Africa.

Isolation Hospital and Tuberculosis Sanatorium.—Work is soon to be commenced on the new Contagious Disease Hospital and Sanatorium for Tuberculosis, Detroit, a site having been selected on Hamilton boulevard. The tract contains 25 acres, and the plans call for a group of buildings for the care of acute contagious diseases and for a tuberculosis sanatorium.

The Lake Michigan Water Commission.—In THE JOURNAL, July 11, page 136, we stated erroneously that Dr. Oscar C. Breitenbach had been elected president of the Lake Michigan Water Commission. Dr. Breitenbach directs our attention to the mistake and states that he is president of the Michigan State Water Commission, a subcommittee to the other organization of which Dr. William Evans, Commissioner of Health, Chicago, is president.

MISSOURI.

State Board Election.—At the annual meeting of the State Board of Health, held in Springfield, the following officers were elected: Dr. Albert H. Hamel, De Soto, president; Dr. James A. B. Adcock, Warrensburg, secretary.

Society Meetings.—Macon County Medical Association, at its annual meeting, held in Macon, elected the following officers: Dr. P. S. Watson, president; Dr. Alfred B. Miller, Macon, vice-president; Dr. Daly, secretary, and William H. Miller, Macon, treasurer. The next meeting will be held in Keota.——At the annual meeting of the North Missouri Medical Society, held in Moberly, June 18 and 19, the following officers were elected: President, Dr. Edward A. Grum, Kirksville; vice-presidents, Drs. William L. Brosius, Gallatin, and Godfrey O. Cuppaidge, Moberly; corresponding secretary, E. C. Callison, Kirksville; recording secretary, Dr. Olion C. McEwen, Salisbury, and treasurer, Dr. Robert Haley, Brookfield.

St. Louis.

Personal.—Dr. Rodney J. Bunch has been appointed assistant superintendent of the City Hospital, vice Dr. J. Wilbur Shankland, resigned.——Drs. John W. Marchildon and R. L. Thompson have gone to Europe.

Graduation Exercises.—The degree of M.D. was conferred on a class of 60 at the commencement exercises of the Washington University Medical Department, May 25, by Marshall S. Snow, acting chancellor of the university.——Following the action of the State Board of Health in declaring the Medical Department of Barnes University an incomplete institution, permission was refused, June 1, to 75 members of the graduating class to take the state examination. At a meeting of the faculty of the college, it was decided to carry the controversy to the supreme court in a final endeavor to allow its graduates to take the state medical examination.——The seventy-ninth annual commencement exercises of the Medical Department of the St. Louis University were held May 22, when a class of 68 was graduated. Rev. J. P. Frieden, president of the university, delivered the commencement address.

NEBRASKA.

Commencement Exercises.—The sixty-first annual commencement exercises of the University of Nebraska College of Medicine were held in Omaha, May 21, when a class of 25 was graduated. The doctorate address was delivered by Dr. Harvey W. Wiley, director of the U. S. Bureau of Chemistry, Washington, D. C.

County Society Organized.—At a meeting of physicians of the county, held in Plainview, May 13, the Pierce County Medical Society was organized on the standard plan. The following officers were elected: President, Dr. James M. Alden, Pierce; vice-president, Dr. Frank H. Nye, Plainview; secretary-treasurer, Dr. Leon R. Pheasant, Pierce, and councilors, Drs. Erskine M. Barnes, Plainview, John T. Pringle, Pierce, and Mansen.

NEW JERSEY.

Charity Ball Receipts.—The recent charity ball at Trenton, it is reported, will net each of the three hospitals in the city $3,569.40.

Hospital Corps for National Guard.—In accordance with the provisions of the Dick bill, a hospital corps has been formed, the members of which will be borne on a separate muster roll prepared by the senior medical officer of the organization to which the individual members are assigned.

State Society Meeting.—At the one hundred and forty-second annual meeting of the Medical Society of New Jersey, held at Cape May, June 18-20, the following officers were elected: President, Dr. David St. John, Hackensack; vice-presidents, Drs. Benjamin A. Wadington, Salem, Thomas H. Mackenzie, Trenton, and Daniel Strock, Camden; corresponding secretary, Dr. Harry A. Stout, Wenonah; recording secretary, Dr. William J. Chandler, South Orange, and treasurer, Archibald Mercer, Newark. The committee on prize essays announced awards to Drs. Thomas N. Gray, East Orange, and Floyd McEwan, Newark, whose essays were on "Infant Feeding During the First Two Years of Life."

Health of New Jersey in June.—The number of deaths reported to the Bureau of Vital Statistics during the month ended June 15 was 2,628, an increase of 26 over the previous month and 77 less than the corresponding period last year. The deaths under one year numbered 444; over one year and under five years, 249; sixty years and over, 768. The number of deaths from typhoid fever (18) is lower than for any period during the last twelve months. During the month tuberculosis caused 353 deaths; diseases of nervous system, 345; diseases of circulatory system, 289; diseases of respiratory system (pneumonia excepted), 153; pneumonia, 218; nephritis, 190; diseases of digestive system (infantile diarrhea excepted), 159; cancer, 121; scarlet fever, 48; suicide, 42; infantile diarrhea, 66; diphtheria, 41; measles, 23; cerebrospinal meningitis, 22; whooping cough, 21; typhoid, 18; all other causes, 519.

NEW YORK.

Personal.—Dr. Charles Phillips Emerson, formerly of Baltimore, was inaugurated superintendent of Clifton Springs Sanitarium July 9.

New Hospital for Buffalo.—Owing to the lack of proper facilities for the care and treatment of contagious diseases, the Buffalo Academy of Medicine has appointed a committee to facilitate the building of a municipal hospital for contagious diseases. The Erie County Medical Society has likewise appointed a committee of fifteen to further this project.

Officers of the Buffalo Academy of Medicine.—At the annual meeting of this society officers were elected as follows: President, Dr. Charles Bowerman; secretary, Dr. William Irving Thornton; treasurer, Dr. Harry R. Trick; chairman of the section of medicine, Dr. Julius Ullman; secretary, Dr. Thomas J. Walsh; chairman of the section of surgery, Dr. Lawrence Hendee; secretary, Dr. Frederick J. Parmenter; chairman of the section of pathology, Dr. James A. Gibson; chairman of the section of obstetrics, Dr. Earl P. Lathrop; secretary, Dr. Edward Mann.

Day Camp for Consumptives.—Through the efforts of public-spirited citizens of Buffalo, an adequate sum has been subscribed for a day camp for consumptives and from thirty to forty individuals are given car fare to and from the camp and obtain scientific outdoor treatment with proper food supply under the direction of Dr. John Pryor and Dr. George Eckles on a farm tract within the city limits. The work is being carried on through the efforts of the Erie County Branch of the National Red Cross Society and the Tuberculosis Committee of the Charity Organization Society.

New York City.

Personal.—Dr. David E. Hoag will accompany the annual tour of the American Automobile Association as its official surgeon. The tour began at Buffalo July 9.——Dr. Louis F. Bishop, Dr. and Mrs. S. O. Vander Poel and Dr. and Mrs. Albert Warren Ferris have sailed for Europe.

Contagious Diseases.—There were reported to the sanitary bureau for the week ending July 4, 472 cases of measles with 15 deaths; 374 cases of tuberculosis, with 150 deaths; 244 cases of scarlet fever, with 23 deaths; 243 cases of diphtheria, with 28 deaths; 37 cases of typhoid, with 8 deaths; 17 cases of whooping cough with 5 deaths; 54 cases of varicella and 2 deaths from cerebrospinal meningitis, a total of 1,441 cases and 231 deaths.

PENNSYLVANIA.

Philadelphia.

Fourth of July Injuries.—According to the reports of the various hospitals throughout the city, nearly 1,000 persons were injured by fireworks. Very few of the injuries sustained this year were of major importance; but one death has resulted since from tetanus.

Suspended.—At a meeting of the County Medical Society, June 17, Dr. Louis J. Lautenbach, accused of diverting patients from the Philadelphia Eye, Ear, Nose and Throat Institute, a project conducted by the doctor, to his office for treatment, was found guilty and suspended for two years. A motion was also adopted recommending to the State Board of Public Charities that the charter of his institute be revoked.

Charity Society's Deficit.—According to a report of the Society for Organizing Charity, the organization will close its fiscal year this summer with a deficit of $10,000. It is claimed that the resources of the society have been exhausted by the financial depression. The following report shows the work accomplished by the society during the winter: Total applications, 11,015; number of families represented, 6,094; families under care, 1,539; permanent employment procured, 177; temporary employment, 362; employed under auspices of society, 1,097; relief to families, $18,594.73; relief for families through other agencies, 2,312; visits to poor, 29,313; individuals cared for at lodges, 12,179.

Health Report.—The total number of deaths reported for the week ended July 11, aggregated 585, including 312 males and 273 females. This is an increase of 64 over the number reported the preceding week, and an increase of 117 over the number reported in the corresponding week of last year. The principal causes of death were: Typhoid, 7; measles, 7; pertussis, 5; diphtheria, 6; consumption, 38; cancer, 26; diabetes, 4; paralysis, 12; tetanus, 2; heart disease, 41; acute respiratory disease, 28; enteritis, 113; apoplexy, 11; hepatic cirrhosis, 5; appendicitis, 8; nephritis, 37; premature birth, 9; congenital debility, 20; suicide, 6; accidents, 19; sunstroke and heat, 29; and marasmus, 9. There were 119 cases of contagious diseases, with 14 deaths, as compared with 119 cases and 20 deaths reported in the preceding week.

TENNESSEE.

Smallpox.—Dr. Philander D. Sims, city physician of Chattanooga, reports that, on June 5, there were 20 cases confined in the Isolation Hospital and that 2 other patients were under strict quarantine.

Society Meetings.—The Upper Cumberland Medical Society held its annual meeting at Sparta May 27. The following officers were elected: Dr. Byrd S. Rhea, Bon Air, president; Drs. John T. Moore, Algood, Thomas J. Potter, Smithville, and William M. Breeding, vice-presidents; Dr. Venable L. Lewis, Crossville, secretary, and Dr. R. E. Lee Smith, Doyle Station, treasurer.——At the twenty-eighth annual meeting of the Middle Tennessee Medical Association, held in Centreville, May 21 and 22, Dr. William M. Litterer, Nashville, was elected president; Dr. Leonard E. Ragsdale, Williamsport, vice-president, and Dr. R. Logan Jones, Nashville, secretary-treasurer (re-elected).——The West Tennessee Medical and Surgical Association held its annual meeting in Jackson May 21 and 22, at which the following resolutions were unanimously adopted:

Resolved, That we, as members of the West Tennessee Medical and Surgical Association, will discard the use of all secret formulary products, and will decline to use proprietary medicines that are advertised either to the profession or to the public, through agents or otherwise, believing that as a rule, ready-made remedies are not conducive to the study of materia medica and the therapeutic action of medicines, and that such practice is contrary to rational medicine and results in routine practice without a due adaptation of remedies to diseases. We believe it to be more commendable to have a thorough knowledge of the action of a few drugs and know when and how to use them, than the careless habit of prescribing compounds, the effect of which we know but little or nothing.

Resolved, That, believing the National Formulary contains a sufficient number of drugs and combinations to meet the various indications in the treatment of disease, that we endeavor to confine our practice to the official products contained therein. And it is the sense of this society that students in medical colleges should not attempt to pass a final examination in materia medica until they apply for a diploma at the end of the course.

The following officers were elected: President, Dr. Frank D. Smythe, Memphis; vice-presidents, Drs. Joseph R. Nelson, Eurekaton, and Lorenzo L. Webb, Carroll, and secretary-treasurer, Dr. Isaac A. McSwain, Paris.

TEXAS.

May Vital Statistics.—During May there were reported to the health department 5,111 births, with 1,768 deaths. Of the decedents, 353 were over 60 years of age and 330 under 1 year old.

Endorses Amendment to School Law.—The North Texas Medical Association, at its fifty-seventh semi-annual meeting, held in Denison June 17 and 18, adopted resolutions setting forth needed improvements in the county public school system and endorsing the pending constitutional amendment relating to public free schools. The association holds its next meeting in Dallas in December.

Tuberculosis Fight.—Dr. Hatch W. Cummins, Hearne, president of the State Medical Association of Texas, has written a letter to the councilors of the association, urging their support and help in selecting delegates to the International Meeting on Tuberculosis. He requests that each councilor furnish the names of five physicians of his district, who promise to attend, that these may be added to the list of delegates.

UTAH.

Verdict Against Physician.—In the case of Mrs. Jane James against Dr. J. E. Robertson, in which damages of $5,000 were claimed on account of alleged neglect by the physician which caused the plaintiff to lose one eye, the jury is said to have returned a verdict, June 12, for the plaintiff, assessing damages at $1,500.

Health Bulletin.—During May, 361 deaths were reported in the state. There were 94 cases of scarlet fever, with 5 deaths; 33 cases of smallpox; 35 cases of diphtheria, with 3 deaths; 27 cases of typhoid fever, with 2 deaths; 581 cases of measles, with 3 deaths; 8 cases of chickenpox; 159 cases of pneumonia, with 58 deaths, and 16 cases of tuberculosis, with 10 deaths.

Sentenced to Penitentiary.—Dr. Edward S. Payne, an aged practitioner of Salt Lake City, indicted on eight counts for sending out literature and medicine contrary to law, is said to have pleaded guilty on two counts and to have been sentenced to imprisonment for two years at hard labor in the United States penitentiary at Fort Leavenworth.

VERMONT.

Vermont Alumni Meet.—At the annual meeting of the Alumni Association of Vermont University Medical Department, Burlington, held June 23, the following officers were elected: President, Dr. W. Scott Nay, Underhill, '73; vice-presidents, Drs. U. A. Woodbury, Burlington, '59; Jacob C. Rutherford, Providence, R. I., '86; Donly C. Hawley, Burlington, '84; Matthew J. Wilson, Philadelphia, '83, and William H. Briard, Boston, '83, and secretary-treasurer, Dr. Lyman Allen, Burlington, '93.

Soo Valley Society Election.—At the thirteenth annual meeting of the Soo Valley Medical Association, held in Sioux Falls, S. D., June 19, the following officers were elected: President, Dr. Charles O. Wright, Luverne, Minn.; vice-presidents, Drs. Prince Sawyer, Sioux City, Iowa; Elwin F. Reamer, Mitchell, S. D.; secretary, Dr. Charles L. Sherman, Luverne, Minn.; treasurer, Dr. Samuel A. Brown, Sioux Falls, S. D.; and censors, Drs. Gilbert G. Cottam, Rock Rapids, Iowa; William P. Roberts, Sioux Falls, S. D.; John A. Dales, Sioux City, Iowa, and Arthur E. Cook, Randolph.

VIRGINIA.

Personal.—Drs. Horace Hoskins, Frank G. Scott, Harry F. White, and Eugene Eggleston are the newly appointed internes at the City Hospital, Richmond.——Dr. Oscar Fletcher has succeeded Dr. I. J. Roper as surgeon in charge of the King's Daughters Hospital, Norfolk.

Medical Staff Elected.—The council committee on relief of the poor of Richmond have appointed the following consulting staff for the City Home: Surgical, Drs. George Ben Johnston, Charles R. Robins, H. Stuart MacLean, and James W. Henson; medical, Drs. William S. Gordon, McGuire Newton, Manfred Call, and John G. Trevilian, and eye and ear, Drs. Joseph A. White and Clifton M. Miller.

Elections.—At the meeting of the Alumni Association of the Medical College of Virginia, the following officers were elected: President, Dr. William C. Barker, Buchanan; vice-presidents, Drs. W. E. Evans, Noland, N. C.; L. A. Burke, Petersburg, and H. B. Mahood, Emporia; secretary, Dr. McCaw Tompkins, Richmond; assistant secretary, Dr. D. D. Talley, Jr., Richmond, and treasurer, Dr. Frank H. Beadles, Richmond.——The thirteenth semi-annual meeting of the Southwest Virginia Medical Association was held in Emporia, June 2, when the following officers were elected: President, Dr. Peyton B. Green, Wytheville; vice-presidents, Drs. Thomas D. Hutton, Glade Spring, and James H. Dunkley, Saltville, and secretary-treasurer, Dr. A. B. Greiner, Rural Retreat.

Report of the Smallpox Epidemic in Alexandria.—Passed Assistant Surgeon Goldberger, in his official report to the surgeon-general of the U. S. Public Health and Marine-Hospital Service, states that cases of this disease had been occurring from time to time since early in January of this year, but on account of its mildness many of the laity had questioned the correctness of the health officer's diagnosis, and had accordingly been indifferent or actively opposed to taking the necessary sanitary measures for its suppression. In 13 cases of the disease in six families, 4 presented a well-marked discrete eruption which was clearly that of smallpox; the others were convalescent, evidently from the same disease. With only one exception, none claimed to have ever been vaccinated, although several were children of school age; the one exception was a young man presenting a well-marked discrete eruption who claimed to have been vaccinated in 1898, but a careful search for a scar failed to reveal any evidence of it. Practically nothing is being done to suppress the disease. The health officer stated that disinfection with formaldehyd was being practiced, but from his description of the method employed Dr. Goldberger believes that it is ineffective. There being no hospital where the sick and contacts can be taken for treatment and isolation, an attempt was made to isolate them in their homes by placing a guard outside. This guard was maintained during the day only. Manifestly this practice affords little, if any, protection to the community; on the contrary, by permitting a continuance of the intimate association in the household between the sick and the well (the latter, for the most part, unprotected children), there is a condition of affairs which is in the highest degree favorable to the multiplication in the number of cases and the indefinite prolongation of the outbreak.

WEST VIRGINIA.

Personal.—Dr. Daniel J. Rudasill, Kingwood, has been appointed local U. S. pension examining surgeon.——Dr. Stewart, Wheeling, who has been physician for the penitentiary for several years, has resigned.

State Society Meetings.—The forty-first annual meeting of the West Virginia State Medical Association was held in Clarksburg, May 13-15, under the presidency of Dr. William W. Golden, Elkins. The following officers were elected: President, Dr. Fleming Howell, Clarksburg; president-elect, Dr. Vincent T. Churchman, Charleston; vice-presidents, Drs. Robert J. Reed, Wheeling; Rawley H. Powell, Grafton, and Henry D. Hatfield, Eckman; secretary, Dr. Thomas W. Moore, Huntington; treasurer, Dr. Timothy L. Barber, Charleston; councilors, first district, Drs. Henry P. Linsz, Wheeling, and Arthur O. Flowers, Clarksburg; second district, Drs. Richard E. Venning, Charleston, and John C. Irons, Elkins; third district, Drs. Peter A. Haley, Charleston, and George D. Lind, New Richmond; fourth district, Drs. Thomas J. McGuire and William N. Burwell, Parkersburg; fifth district, Drs. Joseph B. Kirk, Elkhorn, and Joseph E. Rader, Huntington; delegate to the American Medical Association, Dr. J. G. Walden, Wheeling, and alternate, Dr. Orra F. Covert, Moundsville. The next meeting of the association will be held in Elkins. In his presidential address Dr. Howell advocated the conversion of one of the state's hospitals for the insane into a detention sanatorium. The following resolution, introduced by Dr. Alva S. Grimm, St. Marys, was adopted:

WHEREAS, The study of alcohol from a scientific standpoint has demonstrated that its action is deceptive and that it does not have the medical properties that we once claimed for it, now, therefore, be it

Resolved, By the West Virginia State Medical Association, That we deplore the fact that our profession has been quoted so long as claiming for it virtues which it does not possess, and that we earnestly pledge ourselves to discourage the use of it, both in and out of the sick room.

GENERAL.

Examination of Rats.—Passed Assistant Surgeon Currie reports that, during the week ended May 30, 475 rats were trapped in Honolulu and destroyed, but none was found infected.

Yellow Fever.—Acting Assistant Surgeon Wilson reports from Santiago that a case of yellow fever was reported in that city, June 4, in a Spaniard who died seven days later. The autopsy verified the diagnosis.

Dock Goes to Tulane.—Dr. George Dock, professor of theory and practice of medicine in the University of Michigan; a well-known writer and investigator in pathology and clinical

medicine, has accepted the chair of the theory and practice of medicine, and clinical medicine in the Medical Department of Tulane University, Louisiana.

Coming Meetings.—The American Academy of Ophthalmology and Oto-Laryngology will hold its annual meeting in Cleveland, August 27-29, with headquarters at the Hollenden Hotel. Dr. Secord H. Large is chairman of the committee of arrangements.——The annual meeting of the Medical Association of the Southwest will be held in Kansas City, October 20 and 21. Dr. John Punton is chairman of the committee of arrangements.

Marine Hospital Posts Open.—The Public Health and Marine-Hospital Service announces an examination at 3 B Street S.-E., Washington, D. C., Monday, Sept. 14, 1908, for assistant surgeons. Candidates must be between 22 and 30 years of age, graduates of reputable medical colleges, and free from any ailment which would disqualify them for service in any climate. The terms of service, etc., have been described in THE JOURNAL, or may be obtained on application to the surgeon-general at the above address.

The Southern Medical Journal.—The first number of this new medical journal, having Nashville, Tenn., for its place of publication, is very attractive. We are informed that "no 'hobby' or 'scheme' of any individual school or locality is promoted, and no advertisements of questionable character appear in it." The present issue, which is well printed on paper of good quality, contains a variety of excellent original articles besides editorial articles, abstracts of current literature, etc. The policy laid down for the journal by its promoters is clean, explicit, and courageous, and we wish it a hearty success.

International Congress on Tuberculosis.—Within the last few days Dr. John S. Fulton, the secretary-general of the International Congress on Tuberculosis to be held in Washington, D. C., Sept. 21-Oct. 12, 1908, has been notified of the formation of a committee of arrangements for Cape Colony in South Africa; and of the appointment of official delegates by the departments of state of Denmark, Spain, Newfoundland, Russia, England, Scotland and France. The chairman of the South African Committee is Dr. A. Jasper Anderson, Cape Town, medical officer of health for that district, and chairman of the council of the Association for the Prevention of Consumption and of Other Forms of Tuberculosis in Cape Colony. The committee includes, in addition to a number of representative physicians and laymen, the Rev. A. P. Bender, rabbi of the synagogue at Cape Town. The official delegates from Denmark are Prof. B. Bang, Professor Fibiger and Dr. H. Rördam, a military surgeon and a member of the Danish parliament. Dr. Bang will deliver a lecture during the congress on the method of immunization of cattle which has been adopted by the Danish government and which bears his name. The Bang method has attracted favorable attention in the United States and is being tried by some dairymen. The system is a welcome substitute for the plan of killing all infected cattle. Instead of resorting to extreme measures, tuberculous cows are not required to be disposed of, but are separated from the main herd. The calves of these animals are removed from the infected herd; are carefully fed on sterilized milk; and if results justify it, are finally placed with the healthy herd. In this way the healthy herd gradually increases in size and the diseased one runs out. Dr. Camilo Calleja, Madrid, the Spanish official delegate, is a writer on scientific topics, and is the author of a number of well-known works. Dr. Ramon y. Cajal, Madrid, the winner of the Nobel Prize awarded in 1906, is a member of the Spanish committee of arrangements for the congress. The French official delegates reported so far include Prof. L. Landouzy of the Faculty of Medicine at the University of Paris, the president of the French committee of arrangements for the congress; M. Leune, inspector of the academy, who will represent the Department of Public Instruction of France; and Dr. Maurice Mignon, Nice, who will come from the Mediterranean Medical Society. Dr. S. S. Steriopulo, Moscow, will come as a delegate of the permanent Russian Tuberculosis Commission, and Mr. K. J. Kalning of Riga will represent the Baltic Veterinary Society. Dr. Henry G. Beyer, chairman of the committee on the exhibition to be held in connection with the congress, has been notified of the arrival in this country of the exhibits which have been assembled by the national committees of Germany, Sweden and Switzerland. The New National Museum in which the congress and the exhibition are to be housed, will not be finished by the time the congress convenes. The first and second floors, however, will be put into such a state as to house the congress and the exhibits conveniently. These two floors have a combined space of about 100,000 square feet. The use of this building was authorized by Congress, and $40,000 was appropriated to make it available for the meeting and to accommodate the exhibits.

FOREIGN.

Transactions of International Hygiene Congress.—The four volumes containing the official transactions of the Fourteenth International Congress for Hygiene and Demography, held at Berlin last September, are published by August Hirschwald, Unter den Linden 68, Berlin. The volumes can be bought separately at prices ranging from $1.50 to $5, or the whole set is sold for $12.50.

Cholera in India.—Consul-General Michael reports from Calcutta that the work of inoculation against cholera in the coal fields is being pushed vigorously. Dr. Haffkine spent a day in Asansol for the purpose of meeting the residents with a view to affording those who wished the opportunity of protecting themselves. He has arranged to carry on inoculation at the Chota Nagpur and vicinity. The present epidemic has reawakened interest in cholera inoculation, which was carried on extensively and with a large measure of success between 1893 and 1896, and which, though continued for some years afterward, was completely overshadowed by the outbreak of plague.

Personal.—Dr. Samuel Gemmel, professor of clinical medicine in the University of Glasgow, has been appointed professor of practice of medicine in that institution to succeed the late Sir Thomas McCall Anderson.——The following medical men were among the recipients of "birthday honors" in Great Britain: Sir Thomas Lauder Brunton and Prof. Watson Cheyne have been created baronets; Col. David Bruce of the royal army medical corps, Mr. Robert W. Burnet and Mr. Peter O'Connell have been knighted; William Henry Power, C.B., has been promoted to knight commander of the Order of the Bath; Lieut.-Col. Francis F. Perry, Indian Medical Service, principal of the Medical College of Lahore, has been made a Companion of the Indian Empire; and Lieut.-Col. Johnston Shearer of the Indian Medical Service has been made a Companion of the Order of the Bath.

LONDON LETTER.

(From Our Regular Correspondent.)

LONDON, June 27, 1908.

The Research Defense Society.

The inaugural meeting of this society, formed "to make known generally the facts about experiments on animals in this country," was held at the house of the Royal Society of Medicine. The president, Lord Cromer, delivered an eloquent address in defense of vivisection. He said that it had been shown that vivisection had yielded invaluable results and promised results still more invaluable. Experiments were conducted in such a way as to minimize, if not to abolish, pain. Nearly every discovery in medical science since Harvey discovered the circulation of the blood was, directly or indirectly, the result of experiments on animals. One of the greatest discoveries of modern times—transmission of malaria by mosquitoes—was going to make the tropics habitable. When Professor Osler was asked at the Royal Commission on Vivisection, now sitting, whether this discovery could have been made had it not been for previous experiments on animals, "Never" was the reply. "The men who made these investigations spent their lives in the laboratories and their whole work has been based on experiments on animals." The case of antitoxin was another example. The statistics of the Metropolitan Asylums Board of the percentage of fatal cases had sunk from 28 in the period which preceded the introduction of the antitoxin treatment to 2.8 per cent. Great misapprehension existed as to the extent to which vivisection was carried on. According to the latest figures about 73,000 experiments were made in 1907. But of these no fewer than 96.5 per cent. were inoculations, that is to say, did not involve operations of any kind. In the remaining 3.5 per cent. the operation was always carried on under an anesthetic. Speaking before the Royal Commission Professor Starling had said: "Though I have been engaged in the experimental pursuit of physiology for the last seventeen years, on no occasion have I ever seen pain inflicted in any experiment on a dog or cat, or, I might add, a rabbit in a physiologic laboratory in this country."

A Doctor in the Arctic.

Dr. James F. Rymer will shortly gain the distinction of being the first qualified British medical man to take up his residence in the Arctic Circle. After serving eight years as medical officer at the Carthusian Monastery in Sussex, Dr.

Rymer went to Canada and for the past six months has lived at Edmonton, Alberta. Recently he left there on a lonely journey of 1,800 miles along the Athabasca and Mackenzie rivers, his destination being Fort Good Hope, which is about 100 miles within the Arctic Circle. He does not propose to return to civilization for at least three years. He has sufficient medicine in concentrated forms to last at least one year and has arranged for more to be forwarded. His patients will be the Indians and Esquimaux in the vicinity of Fort Good Hope and Fort Macpherson. Several diseases and fevers often break out among them, and, as they have no skilled attention, the loss of life has been enormous. The Doctor can speak French, which is the only language other than their own which the Indians understand, and intends to start the study of the languages of the Indians and Esquimaux directly he arrives. At his headquarters he will not have more than five white companions, these being connected with a Roman Catholic mission and trading post.

Craniologic Investigation by the Egyptian Government at the Royal College of Surgeons.

The director general of the survey department of the Egyptian government has written to the Royal College of Surgeons asking that facilities may be given to Dr. Elliott Smith and Dr. Wood Jones of the Cairo Medical School to carry out in the museum of the college an examination of a collection of material found in the course of excavations made in the Nile Valley and representing the varied races of people who inhabited Nubia in ancient times together with their pathology and the results of their surgery. The Egyptian government offers the museum of the college the material, which is sent for the purposes of comparative study. The president has informed the government that the desired facilities would be granted. The council of the college resolved that the government should be informed that they regarded the collection of specimens as a most valuable addition to the museum.

The Dangers of Motor Traffic in London.

The nuisance and dangers of the motor bus are much in evidence. At a protest meeting on the subject held in the city the Lord Mayor presided. Sir Dyce Duckworth, physician to St. Bartholomew's Hospital, objected to the motor buses and cars on the following grounds. They create a fearful noise and vibration. Their speed in many places is a perpetual danger. Fatal and other injuries to people and property are increasing. Dropping of petrol causes slipperiness to horses and damages varnish of carriages. The stench is insufferable. "In short locomotion in the streets of London has now become abominable and little short of a prolonged agony." The following are the official figures of the accidents which occurred last year: Accidents caused by motor buses, 4,723; fatal cases, 36; cases of personal injury, 1,068. Accidents caused by motor cars, 5,959; fatal cases, 66; cases of personal injury, 2,055. A resolution was carried calling for amended legislation in the interests of the public and declaring the excessive noise, speed and noxious smell of a large proportion of the motor traffic to constitute a great danger.

Survival After Rupture of the Spinal Cord.

A remarkable case of rupture of the cervical spinal cord in which the patient survived has just been brought to a close in St. Bartholomew's Hospital. In last October a lad, aged 17, was crushed across the shoulders while trying to get out of an elevator. His spine was broken and he was paralyzed below the neck. As he could not use his arms he was unable to feed himself. An operation was performed to ascertain whether bone was pressing on the spinal cord. The cord was found severed two inches from the brain. After lying in bed for four and one-half months the boy was able to twitch his fingers, but this was the only movement he ever regained. He received unremitting attention and everything was done to brighten his life. A special reading desk was fitted up above his bed. He lived for seven and one-half months.

London and Counties Medical Protection Association.

The annual report of the London and Counties Medical Protection Association shows that there is an increased tendency of people to claim compensation from doctors when the results of treatment are not as satisfactory as could be wished, and to make this fact a ground for not paying their bills. Thus a member who took proceedings to recover fees for medical attendance was met by a counter-claim for $250 on the ground of alleged negligence and want of skill. The case was defended by the society. The judge gave judgment for the plaintiff and said that the counter-claim was monstrous. The question whether the society should not only pay the expense of defending actions against its members (as it does now), but also undertake to reimburse members for adverse verdicts and costs, has been under consideration. To do so it would be necessary to raise the annual subscription from $2.50 to $5. A circular was issued to the members of the society requesting them to vote on the project. The result was very unsatisfactory. Two-thirds of the members did not vote and of those who did four-fifths were in favor of the scheme. The council was therefore unable to move any farther in the matter.

BERLIN LETTER.

(From Our Regular Correspondent.)

BERLIN, June 15, 1908.

An Antiquackery Bill.

That folly and the quackery which feeds on it, flourishes not only in the land of freedom under a republican system, but also in monarchies, even in states with an absolute government, is a fact with which we must reckon, and all regulations which have been devised or which can be thought of will not alter this fact. Neither legal restrictions nor education of the people, from which so much is expected at present, will banish quackery from the world. This conviction, however, must not hinder us from continually seeking new methods for repressing this evil which injures the sick, not only in purse, but often in life and limb. In this direction a duty is especially imposed on physicians. We do not wish to deny that in this matter we are contending for our own interests—on the contrary we may freely acknowledge that we do not patiently put up with an injury to our material interests, but are seeking to carry on a justifiable struggle for our means of livelihood. But this struggle on the part of physicians is justified in the eyes of the public by the fact that it is carried on also, to an equal extent or in a higher degree, in the interest of the community, and especially of its weaker part, those who are sick and suffering.

It may be already known to you that in Germany, up to the year 1869 there was a legal prohibition of quackery. This was abolished, not on the initiative of the government, but on that of the liberal party, which in its idealism was of the opinion that the German people were well enough educated always to prefer scientific physicians to quacks. To be sure, under these restrictive measures quackery prevailed to a not inconsiderable extent, but it must be admitted, on the other hand that since the removal of the prohibition, quackery has grown markedly in extent and in pernicious activity.

According to an official report for the year 1901, quackery has increased in Berlin 1600 per cent. in the last twenty years, and according to approximate statistics of the same year the number of professional quacks in Germany was 12,000. According to a compilation by Dr. Reissig, from 1888 to 1891, there were sold in Germany 1,724,000 books by quack authors, at a price of 14,500,000 marks ($3,480,000). The sort of persons who make a business of treating the sick without a medical license has frequently been publicly established. Not only people of the most inferior education, but also persons of the lowest ethical standing, who have repeatedly been punished with imprisonment or sent to the house of correction, possess the confidence of the public to such an extent that care for the health is entrusted to them. To be sure the attempt has been made by police regulations and by instruction of the public to restrict quackery. Quacks have often been punished for violation of the sections of the law regarding injury to health and homicide by carelessness, and yet no recession of quackery has been observed. The material advantages which can be secured in this convenient way—convenient at a time when newspaper information is very widespread and everything which is printed is believed, not simply by the uneducated—are so enticing that the business is carried on boldly in spite of all threatened punishments and is constantly being taken up anew by still other people. On account of these facts the government, as I have already mentioned in a former letter, has determined to limit quackery or, as it is termed, the exercise of the healing art by unapproved (*nicht approbierte*) persons, by a special law. A law entirely prohibiting quackery is not contemplated by the government, chiefly because the prospect of such a law being accepted by the reichstag is very small. The radical (*freisinnige*) party would vote against it on the same ground as that on which their predecessors supported the abolition of the prohibition of quackery, namely from ideal principles, from their policy to leave every citizen as much freedom as possible. The social democrats are op-

posed to it, because the majority of quacks belong to the lowest of the population, from which that party draws most of its adherents, and similar reasons would be influential with the other parties in bringing about the defeat of a law which contained a prohibition of quackery. The bill which the government published a few months ago, in order to obtain the opinions of the classes interested, contemplates placing the quacks under the strictest control so that they will be obliged to keep record books in which statements of their business shall be regularly entered. The so-called absent treatment (by letter, etc.), treatment of venereal diseases, and treatment by means of hypnosis and narcosis or by means of so-called mystical methods (magnetism, spiritualism, etc.), are forbidden. If the quack is convicted of a punishable offense in the exercise of his "profession" he may be forbidden to practice it. Whoever makes untrue statements in public advertisements regarding the treatment of the sick or remedies therefor is liable to punishment. These are the essential provisions. The German medical profession has expressed itself favorable to this bill in the professional press, and in some cases demanded stricter provisions. The German Medical Convention, which meets at the end of June, and which is composed of delegates who represent the majority of the organized physicians, will take up the question with the same intent. From the public, and especially from the parliamentary class, no considerable number of opinions regarding the bill have so far found expression. It is easy to understand that the quacks themselves, especially so far as they are organized in associations, vigorously oppose it. Whether the government will have the courage actually to introduce a bill into the reichstag and what success it will have, remains to be seen. In view of the composition of our reichstag, too great hopes are, unfortunately, not to be indulged in.

Value of Diphtheria Antitoxin.

While in your country certain states are already furnishing diphtheria antitoxin gratis to physicians (in a similar manner as the Italian government supplies its physicians with quinin for the fight against malaria), there are still in Germany, in the country where diphtheria antitoxin originated, a number of physicians who are not yet convinced of the effectiveness of the serum and who do not use it in their practice. They are supported by certain prominent medical statisticians who, on the ground of epidemiologic studies, sustain the view that the undoubted diminution in diphtheria mortality for the last fifteen years is to be referred to the natural variation of the so-called *genus epidemicus*, and that the antitoxin has had no share in this diminution of the death rate. Most practitioners, indeed, and particularly all pediatrists (in Austria, Prof. Kassowitz forms perhaps the only exception), are unconditional supporters of antitoxin. This position found expression in an address which the renowned Berlin pediatrist, A. Baginsky, delivered before the Berlin Medical Society, June 17. The speaker, as well as the pediatrists and surgeons who followed him, emphasized the importance of the antitoxin treatment. The fact that the diphtheria mortality in the hospitals has sunk from about 40 to 50 per cent. before the discovery of antitoxin to the present figure of 10 to 20 per cent., and that the death rate of tracheotomy cases which before the year 1894 was about 70 per cent. now reaches only about 20 per cent., is unconditionally attributed to antitoxin, and it was urged on physicians as a duty by all the speakers to employ the serum at the right time in every case of diphtheria. In Germany from 4,000 to 5,000 antitoxin units are injected as a maximum, while in America (as was repeatedly recalled in the discussion) in severe cases as much as 20,000 to 30,000 units are injected. Whether it is possible to lower the present mortality figures by the use of these large doses, further experience must decide.

Professor Behring.

While the antitoxin treatment of diphtheria is almost universally accepted in the entire civilized world, it is unfortunate that we can not report anything very encouraging regarding the health of its discoverer, E. Behring. To be sure the reports of a mental affliction or of progressive paralysis—which emanated from Paris and may well be called malicious—have fortunately not been confirmed; but for a number of months he has been in a sanatorium for nervous diseases at Munich, undergoing treatment for his marked neurasthenia. The extraordinarily exhaustive intellectual labor, the numerous severe disappointments which this too sanguine man has experienced in his various fields of work and especially in tuberculosis, the not inconsiderable material responsibilities necessitated by his establishment at Marburg planned on an unusually large scale (where he has spent several hundred thousand marks in organizing the business of his investigations, and especially in the search for a remedy against tuberculosis), and probably still other causes have made severe demands on the elastic force of this laborious investigator and produced a certain degree of exhaustion. It is to be hoped that he may again recover his previous health and continue his researches in the service of science.

VIENNA LETTER.

(From Our Regular Correspondent.)

VIENNA, June 25, 1908.

Accidental Infection with Glanders.

An unusual accident occurred recently in the public institute for the examination of food at Czernowitz. Dr. Luksch, the chief bacteriologist, while making some investigations on the *Bacillus mallei* put a large quantity of the bacilli, obtained from an animal from the slaughter-house, into a centrifuge. The tube containing the glanders bacillus burst and the contents were scattered over the laboratory. The fragments of glass were picked up by some of the persons working in the room, and, as it was believed that the bacilli were dead or inert, no great precautions were taken to prevent infection. In the course of a few days all those who were in the room at the time of the accident, developed symptoms of glanders, especially of the tracheal and pulmonary type, and two of the victims died within forty-eight hours of the onset of the disease. Dr. Luksch also fell ill but soon recovered; two days after apparent recovery he again developed some pustules on the ear and was brought to the serotherapeutic institute in Vienna.

An Accident Hospital.

In order to centralize the teaching of accident surgery the ministry for education has arranged with the two surgical clinics of the general hospital to convert certain wards into a special accident department. The ambulance corps, as well as the police, have been instructed to deliver, after October 1, all cases requiring hospital treatment to this department. The two clinics of von Eiselsberg and Hochenegg will draw their material from it and special classes for students, both undergraduates and postgraduates, will be arranged, each group having to serve a term of fourteen days, several times a year, in the casualty ward. Part of the ward will be at the disposal of the military authorities who will institute special classes for the army military corps.

Proposed Reform in Sanitary Regulations.

A bill is before the Austrian parliament dealing with needed reforms in the sanitary regulations. The main points of the bill are: Completion of the scientific institutions, already erected, according to modern medical knowledge; centralization of all sanitary boards and the election of competent medical men as presidents of the local branches of the board; the erection of all such institutions as are required for the study and relief of disease; improvement of the position of the public health officers and larger powers for them (hitherto medical opinions have been overruled by the bureaucrats). The bill is strongly supported by the medical profession.

Professor Meyer Asked Not to Leave Vienna.

Prof. Hans Horst Meyer, the pharmacologist, who was called to Vienna about three years ago, has been asked by the senate of the Berlin University to accept the chair of pharmacology in that institution. In order to dissuade him from accepting this flattering offer a deputation of ten of the most eminent members of the profession, all professors of the Vienna medical faculty, waited on him and asked him not to desert Vienna, both for scientific and national reasons. This unusual act not only caused a widespread sensation in the profession, but also reminded the government that it is its duty to retain such eminent men at any cost. Professor Meyer will not leave Vienna.

Mortality from Tuberculosis in Austria.

The population of Austria-Hungary is about 45,000,000, and the annual mortality from tuberculosis is 750,000, or 14 per cent. of the total deaths from all causes. The northern parts of the empire show a ratio of 38 to 48 per 10,000 inhabitants, while the southern parts have only about 22 to 30 deaths from tuberculosis to each 10,000 inhabitants. The highest mortality is found in Bohemia with a mean of 54 in the north and 36 in the south, per 10,000. Vienna also has a high average mortality from this disease—42 per 10,000—but the hospitals as a center for a large area, are largely responsible for this high rate.

Pharmacology

THE BROADER AIMS OF THE COUNCIL ON PHARMACY AND CHEMISTRY.

TORALD SOLLMANN, M.D.

Member of the Council, Professor of Pharmacology and Materia Medica at the Medical Department of Western Reserve University.

CLEVELAND, OHIO.

(*Continued from page 140.*)

XVII. THE NON-PROPRIETARY UNOFFICIAL ARTICLES.

Another problem which has caused the Council some perplexity is that regarding the unofficial substances which have somehow escaped appropriation by proprietary manufacturing houses. There is the host of non-proprietary compound formulas, ranging from morphin-atropin tablets to Dr. X.'s favorite antigout pill or pneumonia mixture. With these the Council need not at present concern itself. Their ingredients are official substances; the combinations may be desirable or, more commonly, undesirable, according to the circumstances, which were discussed in the last chapter.

There are, however, many non-proprietary simple substances, chemicals, active principles, plants, etc. (such as digitalein, cholesterin, mercury salicylate and zinc permanganate), which are not in the Pharmacopeia, and which can not easily be made the subjects of monopoly. Their number is considerable, as a glance at Merck's index or at the fluidextract list of any manufacturing house will show. They have not been admitted into the Pharmacopeia, either because they are of little or no value and little used, or because they are too new. The majority belong to the former class; they might well be spared from the materia medica. Unfortunately, however, some enthusiast periodically resurrects one or the other of them; this then springs into sudden prominence, and becomes to all intents a "new" remedy. The physician who is impressed by these reports naturally desires some unbiased and reliable information about them, as well as about the remedies which are actually new. The ordinary reference books, however, give but very scanty data; they necessarily lack the elasticity which is essential for the proper presentation of a new subject. Above all, however, a physician who desires to try these new remedies should be assured that they are of a uniform quality; but with them, there are no established standards of any kind.

A variety of abuses naturally results. The enthusiastic, if disinterested, statements of the discoverers, or re-discoverers, are rarely subjected to that serious criticism which is indispensable for scientific progress. Incalculable harm may thus be done by extensive experimentation with a remedy in conditions in which it is not indicated. On the other hand, a really valuable agent may lie neglected because no one is paid to "push" it; or it may be seized on by a proprietor, "protected" by a coined name or disguised in a mixture, and sold at an exorbitant price, under doubly exaggerated claims, as happened with phenolphthalein. Most serious of all, the uncertain quality or loose nomenclature of these drugs may constitute a very serious danger, as in the case of the digitalis principles; or at least such may cause creditable remedies to fall into disuse.

It has seemed to the Council, therefore, that there is a very real need for the collection of authoritative data about the more important or commonly used of these non-proprietary unofficial articles, and a special committee has been appointed for the purpose. A list of some eighty of these substances is under discussion, and the Council will appreciate suggestions from the profession as to what substances should be included. It is not intended to confine this investigation to those articles which the Council believes to be really valuable, but also to present the facts about those which have an unjustified popularity.

When it has been decided what substances should be taken up, the necessary data will be obtained as rapidly as possible. An abstract will probably be published in these columns, and a description, prepared on the general plan of the New and Non-Official Remedies, will be inserted in a proposed book. If, then, a physician desires to obtain these drugs of standard quality, he need only affix "N. N.-O. R." to the name of the product. In the event that the drugs on the market are generally below this standard, the Council may mention the names of those manufacturers who have been found to supply the products of the required grade.

(*To be continued.*)

MARIENBAD TABLETS.

The Commercial Value of a Name.

What potentialities exist in a name! The great watering places and health resorts of Europe are household words and their names compel attention. Hence, when a physician receives in his mail a package bearing a foreign postmark and an unusual looking stamp, with the name "Marienbad" on the enclosure, he may possibly restrain his first impulse, born of experience, to throw the "sample" into the waste basket. He may be excused for expecting to find something of unusual merit in a medicine elaborated at such a world-renowned health resort as Marienbad. Especially is his enthusiastic expectancy pardonable when he learns that "Marienbad Tablets" are "prepared according to the prescription" of an individual with the imposing cognomen, "Prof. Dr. Med. Chevalier de Basch."

Then, too, accompanying the "sample" is a circular descriptive of the virtues of this great medicine, printed in parallel columns of massive German and picturesque English. In it he is informed that the "Marienbad Tablets act mildly, without pain on the bowels, and consequently effect their evacuation." Great stress is laid on the advantage of the "tablet-shape" which makes possible the "offering of a perfectly equal dose of the efficacious ingredients" and simplifies the administration "on account of their compendious shape." "Marienbad Tablets," he is told, are unexcelled for the treatment of that condition recognized by all physicians as "sanguiness and its after-effects, such as vergitiousness," and they are highly recommended in cases of "arteriosclerose." As a sop to Cerberus, the circular suggests "the diagnosis should be made by the physician," the assumption being that the proprietors of "Marienbad Tablets" will take care of the treatment while the prognosis will naturally take care of itself.

And the composition of this "compendious" cure for "sanguiness" and "vergitiousness"? Well, if carefully looked for, the physician will find that "Marienbad Tablets" consist of extract of aloes, powdered rhubarb, podophyllin, extract of cascara sagrada and extract of belladonna. That is all: just a simple cathartic tablet such as physicians are prescribing for their patients daily. They do not even contain a picturesque, pharmacologic nonentity like cactin or "latalia rad." Wherein, then, lies the special virtue of their "efficacious ingredients"? We are forced to the conclusion that this must reside in the psychic effect produced by taking a silver-coated tablet from a gilt-trimmed box, labelled "Marienbad," rather than in the essential contents of the tablets themselves.

Frederick Stearns & Co., "Patent Medicine" Vendors.

Physicians who attended the Chicago session of the American Medical Association doubtless noticed while riding on the street cars the blatant advertisements of the headache remedy SHAC (Stearns Head Ache Cure). This nostrum, which seems to have been responsible for at least two cases of poisoning,[1] is

1. THE JOURNAL A. M. A., Dec. 15, 1906, 2012, and Nov. 16, 1907, 1675.

put on the market by Frederick Stearns & Co., Detroit—a fact that was noted in these pages a few months ago.[2] It was not unnaturally assumed that these Peruna-like advertising tactics had been adopted by an enterprising local representative anxious to make a "showing." The June issue of the *New Idea*—a monthly journal published by Frederick Stearns & Co. and devoted to advertising their products to retail druggists—shows that this assumption was not well founded. In their journal they inform the druggist that "a new series of SHAC street car cards are now ready for use in the large cities."

The evils of the indiscriminate use by the public of such powerful and insidious drugs as are contained in the various headache remedies need no further iteration. The question has long since ceased to be an academic one and no casuistic reasoning nor specious arguments can hide the fact that enormous harm is being done by the exploitation of these acetanilid-containing nostrums, and the medical profession has expressed itself in no uncertain tone regarding the matter.

SHAC, however, is not the only "patent medicine" put on the market by Frederick Stearns & Co. Just as extensively advertised—and in the same mediums, the street cars—are Zymole Trokeys "for husky throats." Then there is Pam for the dyspeptic, a "tiny tablet of wonderful power," of which the modest statement is made that "every ferment of the digestive tract that is available is used in these tablets, fitting them for use in all kinds of indigestion." Surely, with such drugs at their command, dyspepsia need give physicians no further cause for worry!

These are some of the products put on the market by Frederick Stearns & Co. and vigorously "pushed" by them in advertisements to the laity. A firm which, while soliciting the patronage of physicians through the pages of medical journals, is at the same time furthering the interests of self-drugging and dangerous nostrum-taking, will be looked on with distrust and suspicion by the medical profession.

Uranalysis by Quacks.

Four young persons in Germany recently sent a vial each, according to directions, to the "urine specialist," J. Locher, who diagnoses disease from inspection of the urine. Each was informed that he had a catarrhal affection of the stomach, abdomen or throat, and each was instructed to buy a bottle of Locher's remedy, costing $1. They did not buy the remedy, as the vials they sent had contained nothing but diluted beer.

Book Notices

THE HARVEY LECTURES, Delivered Under the Auspices of the Harvey Society of New York, 1906-07. Pp. 314, with Illustrations. Cloth. Price, $2.00. Philadelphia: J. B. Lippincott Co., 1908.

This volume is a monument to the success of the Harvey Society of New York, which was organized for the purpose of enabling practitioners of medicine to acquire at first hand from men engaged in research more knowledge concerning the scientific problems and principles underlying their profession. From the start these lectures have served as an inspiration, not only to those so fortunate as to be within the range of the Harvey Society, but also to those who have read the lectures in various medical journals. Their publication in a single volume will be welcomed by many, and their influence will be in this way extended. The benefits of such lectures as those of the Harvey Society and the various lecture associations and endowed lectureships are by no means one-sided. It often has happened that an investigator has been getting lost in the details and ramifications of his problem, when, suddenly called on to present the gist of his results in a semi-popular way, he has been obliged to look over his ground from an entirely new point of view, which has made visible new and straighter paths, or disclosed early strayings and blunders. In making his explorations clear to the uninitiated, the investigator often illuminates some dark part of the road for himself. The scope of this second series of lectures of the Harvey Society is shown by the titles and the lecturers, which we quote below. Some of them appeared in THE JOURNAL, in which case they are followed by the date of the issue in which they appeared. "The Principles of Vaccine Therapy," by Sir A. E. Wright (Aug. 10, 1907); "Bacteriologic Infections of the Digestive Tract and the Intoxications Arising Therefrom," by C. A. Herter (March 23, 1907); "Vasomotor Relations," by W. T. Porter; "The Myelins and Potential Fluid Crystals of the Body," by J. G. Adami (Feb. 9, 1907); "The Factors of Safety in Animal Structure and Animal Economy," by S. J. Meltzer (Feb. 23, 1907) "Metabolism During Inanition," by F. G. Benedict; "Recent Studies of Heredity," by E. B. Wilson (May 11, 1907); "Variations in the Genitourinary Tract," by G. S. Huntington; "Changes in the Lymphoid Tissue in Certain of the Infectious Diseases," by W. T. Councilman (March 30, 1907); "Nervous Disorders of the Heart," by Friedrich Müller; "Problems of Sanitation," by Edwin O. Jordan (Feb. 15, 1908). These lectures are all excellent and valuable. Every physician who reads Dr. Meltzer's clarifying discussion of the factors of safety, by which the body is spared from harm through accident and disease, will have an insight into physiologic pathology that will greatly help his judgment in considering every case of disease and accident he confronts.

PIROPLASMA CANIS AND ITS LIFE CYCLE IN THE TICK. By Captain S. R. Christophers, M.B., I.M.S., No. 29 of the Scientific Memoirs by Officers of the Medical and Sanitary Departments of the Government of India. Paper. Pp. 83. Price 3s. Calcutta: Office of the Superintendent of Government Printing, India, 1907.

This is an excellent piece of investigative work showing conclusively that piroplasmosis of the dog in India is transmitted by *Rhipicephalus sanguinis* (Latreille), whereas in South Africa it is transmitted by *Hæmaphysalis lœchi* (Audouin), as determined by Lounsbury. The infection is hereditary in the tick, the fact being noted that only the nymphs and adults from an infected female are infective, the larvæ not being able to produce the disease. The probable methods of evolution of the parasite in the blood are discussed, the author being of the opinion that a quotidian evolution occurs, in many cases, at least. The course of infection and the evolution of the parasite in the tick was also studied. In the gut it soon assumes the club-shaped form. This form infiltrates the body generally, including the salivary glands, and in the meantime has been changed into the spherical "zygotes," which commonly are intracellular. The latter form one or more "sporoblasts," each of which generates a rather large number of "sporozoites," this being the form inoculated into the dog by the tick. In relation to the parasite of coast fever, Koch had described long protoplasmic processes in the gut of the tick. Christophers failed to identify these forms in *Piroplasma canis*. The parasite is described as occurring in the ova of infected ticks, also in the larvæ, and its evolution during the molting process is presented. The works of Nutall and Smith, and others, on *P. canis*, and the disease it causes, is confirmed in many respects, and certain new observations are added. In addition, the general features of piroplasmosis of different animals are portrayed. Three excellent plates are included.

CLINICAL LECTURES, THIRD SERIES, THE BORDERLAND OF EPILEPSY. By Sir William R. Gowers, M.D., F.R.C.P., F.R.S., Hon. Fellow R. Coll. Phys., Ireland. Cloth. Pp. 121. Price, $1.25. Philadelphia: P. Blakiston's Son & Co., 1907.

Certain conditions more or less related to or resembling epilepsy in some of their manifestations are considered by Gowers in this volume. In cardiac syncope he sees considerable evidence of an essential identity of the process in the nerve elements with that in some epileptic conditions and that one may pass into the other in certain cases. Similarly those peculiar attacks which seem to depend on disturbance of the vagus functions, are considered by him as also sometimes on the borderland of epilepsy, and epilepsy and aural vertigo closely approach each other in some of their manifestations. In migraine, on the other hand, Gowers sees little to indicate any definite relations; though epilepsy may develop from migraine as an indirect consequence of the effect of the intense pain and associated cerebral disturbance. The disturbances of sleep, somnambulism, etc., also come under consideration

2. THE JOURNAL A. M. A., Oct. 19, 1907, 1381.

in this work as borderline states, though their connection with epilepsy is not very well defined. Some forms of tic, which have been reckoned by some as associated with or allied to epileptic conditions, are not here included, but the omission is hardly important. With the description of each borderland malady some remarks on treatment have been appended, which, coming from such an authority, will be appreciated.

TREATMENT OF DISEASES OF CHILDREN. By G. A. Sutherland, M.D., F.R.C.P., Physician to Paddington Green Children's Hospital. Second Edition. Pp. 311. Cloth. Price, $2.00. New York: Oxford University Press, 1907.

This is a small book, necessarily superficial and therefore unsatisfactory. There is too little detail, so important in the management of infants and children. For example, only sixteen pages are devoted to the important subject of infant feeding. But while this lack of detail applies to the book as a whole, there are exceptions in certain parts of the work Considerable attention, for instance, is devoted to the apparently trivial subject of a "cold in the head," with a view to preventing the establishment of a chronic rhinitis and the development of adenoids. Apropos of the latter subject, we can not agree with the author that in a considerable number of cases operated on there is a recurrence of the growths. The "let alone" treatment of pneumonia is much to be commended, as is also the surgical treatment of empyema. We regret, however, to see no mention of the "colony" management of epilepsy. The book closes with 4 pages of "shotgun" prescriptions, always out of place in a work on pediatrics, and all the more to be regretted here when in the body of the book the author insists on diet and general measures.

PROTOZOA AND DISEASE. By J. Jackson Clarke, M.D. Lond., F.R.C.S., Formerly Pathologist to St. Mary's Hospital and Curator of the Museum, Demonstrator of Bacteriology, and Provisional Teacher of Biology in the Medical School. Part II. Cloth. Pp. 137, with illustrations. Price, $2.50. New York: William Wood & Co., 1908.

This is the work of an enthusiast who feels keen interest in establishing the protozoan origin of certain infectious diseases. The point of view leads inevitably to a somewhat uncritical survey of the evidence. The enormous mass of recent work on diseases known, or presumed to be due to protozoa, is only incompletely represented. We note, for example, that in the chapter on ticks no mention is made of Rickett's important papers on Rocky mountain spotted fever. Misprints of proper names, such as "Stegomeia" (p. 3), "McNeil" (p. 23) and "Levatadi" (p. 65) are not uncommon.

NURSING THE INSANE. By Clara Barrus, M.D., Woman Assistant Physician in the Middleton State Homeopathic Hospital, Middleton, N. Y. Cloth. Pp. 409. Price, $2.00. New York: The Macmillan Co., 1908.

The position of an attendant or nurse in an insane hospital is a peculiar one requiring not only special instruction, but also special aptitude. The first of these can be given, the latter is a natural gift. Lacking it, however, much can be done to produce fairly satisfactory attendants from well intentioned, though not specially adapted, individuals and this book includes much that is available for this purpose. The instructions are addressed particularly to women, but, as the author says, they can readily be made applicable to either sex. The information on the forms of insanity, etc., and the chapters on psychology, may seem superfluous for ordinary attendants, but their perusal will do no harm and may serve to sharpen the observing faculties.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Queries for this column must be accompanied by the writer's name and address, but the request of the writer not to publish name or address will be faithfully observed.

INCUBATION OF GELATIN AND CULTURE OF BACILLI.

MÉRIDA, Mexico, June 19, 1908.

To the Editor:—1. Will you please inform me how Dr. Rivas is able to incubate gelatin at 37 C. without liquefaction, as is mentioned in THE JOURNAL, May 9, 1908, page 1493? It would be most interesting to know the formula of the gelatin, as the solution of that problem would be welcomed by all bacteriologists, especially those who are working in tropical countries.

2. I should also want to be assured that I rightly understand the differentiation Test No. 1 of Dr. Rivas' that the culture of bacteria behaves exactly like the uninoculated dextrose bouillon.

HAROLD SEIDELIN, M.D.

ANSWER.—1. Incubation of gelatin is performed with the full knowledge that it will liquefy at 37 C., but the ferments produced by bacteria act more rapidly at that temperature and liquefaction will occur more rapidly. If liquefaction has occurred at the end of the incubation period, whatever that may be, it will be shown by the fact that gelatin tubes immersed in ice water will not solidify as the control tubes will, or as tubes of culture of non-liquefying organisms, for instance *Bacillus coli communis*.

2. Dextrose bouillon cultures of *B. coli communis* and uninoculated dextrose broth as a control will give a canary color after boiling about 0.5 c.c. of it in about 5 c.c. of a 10 per cent. sodium hydroxid solution, whereas the saccharolytes will produce a magenta or purplish color with the same reagent.

MUSCULAR RE-EDUCATION IN TABES.

———, MAINE, June 29, 1908.

To the Editor:—Please give me references to articles describing Fraenkel's method of re-educating the muscular system in tabes.

X. Y. Z.

ANSWER.—The name of the author referred to is Frenkel and not, as erroneously given in some text-books, Fraenkel. One prominent author refers to him as Fraenkel of Berlin, when, in fact, Frenkel lives at Heiden, Switzerland. The following articles may be referred to:

Frenkel, H. S.: *Münch. med. Wchnschr.*, 1890, No. 52.

Frenkel, H. S.: *Deutsch. med. Wchnschr.*, 1896.

Hatschek, R.: *Wien. klin. Rundschau*, XVIII.

Frank: Mistakes in the Exercise Treatment of Tabes and Their Consequences, *Wien. klin. Wchnschr.*, xvi, 42; abst. in THE JOURNAL A. M. A., Jan. 23, 1904, p. 278.

Frenkel, H. S.: Principles of Exercise Treatment of Tabes, *Berl. klin. Wchnschr.*, xlii, 23, abst. in THE JOURNAL A. M. A., July 22, 1905.

THE MORO TUBERCULIN TEST.

PASADENA, CAL., June 30, 1908.

To the Editor:—Please give references to literature on the Moro method of percutaneous introduction of tuberculin for diagnostic purposes.

JOSEPHINE A. JACKSON.

ANSWER.—Moro, E.: Diagnostic Cutaneous Reaction After Rubbing with Tuberculin Salve, *Münch. med. Wchnschr.*, Feb. 4, 1908; abstracted in THE JOURNAL, March 14, 1908, p. 924.

Lignieres and Benjamin, H.: Specific Reaction to Tuberculin Rubbed into Shaved Skin. *Bull. de l'Acad. de méd.*, Feb. 18, 1908.

Heinemann, H.: Harmlessness and Superiority of the Tuberculin Salve Reaction Over the Ocular Reaction, *Münch. med. Wchnschr.*, March 17, 1908.

The Public Service

Army Changes.

Memorandum of changes of stations and duties of medical officers, U. S. Army, week ending July 11, 1908:

Bingham, E. G., capt., M. C., relieved from duty at Army Gen. Hospital, San Francisco, and ordered to Ft. Porter, N. Y., for duty.

Van Dusen, J. W., capt., M. C., granted leave of absence for one month, about October 1.

Snyder, H. McC., lieut., M. C., ordered from Army Gen. Hosp., San Francisco, Cal., to Ft. Rosecrans, Cal., for temporary duty during absence on leave, of Capt. P. W. Huntington.

Ford, J. H., capt., M. C., ordered to accompany troops from Ft. Wm. Henry Harrison, Mont., to duty at American Lake, Wash.

Dale, F. A., capt., M. C., ordered to accompany troops from Ft. Lincoln, N. D., to duty at American Lake, Wash.

Ashburn, P. M., Greenleaf, H. S., Webb, W. D., Gilchrist, H. L., Loving, R. C., Heysinger, J. D., Tefft, W. H., Culler, R. M., Humphreys, H. G., Truby, W. F., Hess, L. T., Winn, R. N., Pierson, R. H., Brown, O. G., Smith, L. L., Owen, L. J., Weed, F. W., Freeman, P. L., Wolfe, E. P, Marrow, C. E., Lyster, T. C., Snoddy, C. A., Siler, J. F., Miller, E. W., Zinke, S. G., Brown, H. L., captains, M. C., and Bruns, E. H., and Cole, C. L., lieutenants, M. C., ordered to report at Washington, D. C., for examination for promotion.

DeLaney, M. A., capt., M. C., will take station at Philadelphia, until further orders, to examine applicants for Medical Reserve Corps.

Ashburn, J. K., contract surgeon, ordered to accompany troops from Ft. Assiniboine, Mont., to duty at American Lake, Wash.

Parkman, W. E., contract surgeon, ordered to accompany troops from Ft. Missoula, Mont., to duty at American Lake, Wash.

Chambers, W. H., dental surgeon, granted leave of absence for one month.

Casaday, G. H., dent. surg., left Presidio of Monterey, Cal., and arrived at Army Gen. Hosp., San Francisco, for duty.

Navy Changes.

Changes in the Medical Corps, U. S. Navy:

Urie, J. F., surgeon, detached from the *Pennsylvania* and ordered to report before a naval retiring board at the Navy Yard, Mare Island, Cal., July 10, for examination for retirement, and then to the naval hospital at that place for treatment.

Freeman, J. F., P. A. surgeon, detached from the Navy Yard, Boston, and ordered to the *Montana*, when commissioned.

Payne, J. H., P. A. surgeon, detached from the Naval Recruiting Station, Cleveland, Ohio, and ordered to the Navy Yard, Boston, and to additional duty in connection with fitting out the *Salem*.

White, E. C., asst.-surgeon, ordered to the Naval Recruiting Station, Cleveland, Ohio.

Hoen, W. S., P. A. surgeon, detached from the *California* and ordered to continue treatment at the Naval Hospital, Mare Island, Cal.

McDonnell, W. N., P. A. surgeon, detached from the *Severn* and ordered to Camp Perry, Ohio, July 5, for duty in connection with the Navy rifle team.

Allen, A. H., asst.-surgeon, Camp Columbia, will proceed to Sancti Spiritus, Cuba, for duty, relieving Asst.-Surgeon E. C. White.

White, E. C., asst.-surgeon, relieved from further duty in Cuba and ordered to comply with Navy Department orders of May 29.

Old, E. H. H., asst.-surgeon, detached from the Naval Hospital, Cavite, P. I., and ordered to Washington, D. C., for examination for promotion and then to wait orders.

Blackwell, E. M., and Snyder, J. J., surgeons, commissioned surgeons from March 4, 1908.

Stalnaker, P. R., P. A. surgeon, commissioned P. A. surgeon from May 3, 1908.

Smith, F. W., asst.-surgeon, detached from the *Wisconsin* and ordered to report to the Commander, third squadron, Pacific Fleet, for duty.

Koltes, F. X., asst.-surgeon, detached from the *Connecticut* and ordered to report to the commander, third squadron, Pacific Fleet, for duty.

Flint, J., asst.-surgeon, detached from the *Wilmington* and ordered to the *Connecticut*.

Evtinge, E. J. O., asst.-surgeon, detached from the *Concord* and ordered to the *Illinois*.

Higgins, M. E., asst.-surgeon, detached from the *Illinois* and ordered to report to the Commander, Third Squadron, Pacific Fleet, for duty.

Winn, C. K., asst.-surgeon, detached from the *Villalobos* and ordered to the *Missouri*.

Steele, J. M., medical inspector, to be placed on the retired list Sept. 18, 1908, after completion of 30 years' service, in accordance with a provision contained in the naval appropriation act of May 13, 1908.

Taylor, J. L., P. A. surgeon, commissioned P. A. surgeon, from Dec. 17, 1907.

Mann, W. L., Jr., acting asst.-surgeon, appointed an acting asst.-surgeon from July 1, 1908.

Bishop, L. W., P. A. surgeon, detached from the Naval Recruiting Station, Indianapolis, and ordered to the Naval Recruiting Station, Denver.

Fiske, C. N., P. A. surgeon, ordered to the Naval Recruiting Station, Boston, and to additional duty in attendance on officers of the Navy and Marine Corps residing in Boston not otherwise provided with medical attendance.

Health Reports.

The following cases of smallpox, yellow fever, cholera and plague have been reported to the Surgeon General, Public Health and Marine-Hospital Service, during the week ended July 10, 1908:

SMALLPOX—UNITED STATES.

Alabama: Mobile, June 13-20, 7 cases.
California: Los Angeles, June 13-20, 1 case; San Diego, to June 13, 100 cases, estimated, and mainly in vicinity of the Pala Indian Reservation; San Francisco, June 13-20, 4 cases.
Iowa: Davenport, June 1-30, 3 cases; Sioux City, 2 cases.
Kentucky: Covington, June 20-27, 3 cases; Louisiana: New Orleans, June 20-27, 5 cases, 1 death.
Missouri: Conway, April 20-May 24, 29 cases; Kansas City, June 20-27, 1 case.
Ohio: Cincinnati, June 19-26, 4 cases; Dayton, June 20-27, 1 case; Troy, to July 3, 28 cases.
Rhode Island: Pawtucket, June 12, 1 case.
Tennessee: Dickson, June 12, 9 cases.
Texas: San Antonio, Jan. 20-27, 1 case.
Vermont: Whiting, May 5, 1 case.
Washington: Spokane, June 13-20, 17 cases.
West Virginia: Moundsville, June 17-July 2, 1 case.
Wisconsin: La Crosse, June 20-27, 3 cases.

SMALLPOX—INSULAR.

Porto Rico: Mayaguez, June 6-20, 4 cases.

SMALLPOX—FOREIGN.

Canada: Halifax, Jan. 13-20, 6 cases.
China: Amoy (Kulangsu), April 6-May 16, present; Foochow, May 23-June 6, present; Shanghai, May 18-24, 3 deaths.
Cochin-China: Cholon, May 23-30, 5 cases, 1 death.
Ecuador: Guayuquil, May 23-30, 4 deaths.
Egypt: Cairo, May 27-June 3, 6 cases, 2 deaths.
Germany: General, May 30-June 6, 6 cases.
Java: Batavia, May 2-30, 14 cases, 1 death.
Portugal: Lisbon, May 30-June 13, 10 cases.
Russia: Moscow, May 23-June 6, 69 cases, 27 deaths; Riga, June 6-20, 5 cases; St. Petersburg, May 16-June 6, 40 cases, 33 deaths.
Siberia: Vladivostock, May 5-14, 1 case.
Turkey: Bagdad, May 30-June 6, 20 cases, 2 deaths.

PLAGUE.

Chile: Antofagasta, May 24, 24 cases, 2 deaths; Arica, May 27, present; Iquique, May 26, 11 cases, 1 death.
China: Foochow, May 30-June 6, present.
Cochin China: Cholon, May 23-30, 5 cases, 3 deaths; Saigon, May 9-30, 16 cases, 15 deaths.
Ecuador: Guayaquil, May 23-30, 10 deaths.
Egypt: General, May 27-June 2, 42 cases, 16 deaths; June 3-9, 36 cases, 26 deaths; Alexandria, May 29-June 10, 5 cases, 3 deaths.
Mauritius: Port Louis May 1-31, 2 cases, 2 deaths.
Peru: General, May 30-June 6, 38 cases, 11 deaths; Callao, 7 cases, 2 deaths; Lima, 3 cases, 4 deaths.
Straits Settlements: Singapore, May 9-16, 1 death.
Turkey: Bagdad, May 30-June 6, 11 cases, 6 deaths.
Venezuela: Caracas, June 10-12, 5 cases, 1 death.

YELLOW FEVER—INSULAR.

Porto Rico: San Juan, July 8, 1 case on S. S. *Julia* from Santiago.

YELLOW FEVER—FOREIGN.

Brazil: Manaos, May 23-30, 2 cases, 2 deaths; Para, May 30-June 6, 4 cases, 4 deaths.
Cuba: Dalquiri, July 6-9, 3 cases, 1 death; Santiago, July 4, 1 case.
Ecuador: Guayaquil, May 23-30, 1 case.
Mexico: Laguna de Terminos, June 27, 2 cases; Veracruz, July 7, 1 case, 1 death.

CHOLERA.

Cochin-China: Cholon, May 23-30, 23 cases, 22 deaths; Saigon, May 9-30, 71 cases, 63 deaths.
Straits Settlements: Singapore, May 9-16, 2 deaths.

Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF ORGANIZATION, POSTGRADUATE WORK, CONTRACT PRACTICE, INSURANCE FEES, LEGISLATION, ETC.

A State President on the Need of Public Instruction.

In his address as president of the Utah State Medical Association, Dr. H. D. Niles of Salt Lake City, Utah, said in part:

Before we can reasonably expect the public to seek or accept any counsel or opinions of the medical profession or to give us any substantial support, we must first make plain to them their needs and our ability to supply these needs. We must prove that we deserve their aid and support, and that they stand in urgent need of our technical knowledge. We have not only to preserve a high standard of education for ourselves, but we must share our education with the well-meaning, in these matters a misguided, public. The fallacious ideas and strange misconceptions that prevail concerning the medical profession and its work have influenced the laity to ignore our proffered assistance and to assume with apparent unconcern the sole responsibility of quickly settling or lightly dismissing some of the most vitally important technical questions the civilized world has ever been called on to consider.

After pointing out a number of instances in which the trained advice of physicians is needed but ignored, Dr. Niles says.

It must be admitted that we are to a large extent responsible for these unfortunate relations, and we must, so far as we are able, take prompt and effective steps to correct them. The public should know more of us, our work and progress, our achievements in science and our well-grounded hopes for the future. They have a perfect right to demand that we place before them our credentials before we insist that they give us their full confidence. For many generations the public has been taught to believe that a doctor's education was confined to the memorizing of numberless drugs and symptoms, and that the practice of medicine consisted, as its name implies, in an attempt to relieve distressing symptoms by the empirical administration of various medicines supposed to have mysterious remedial powers. They have thought of surgeons as men who cut up human beings and who were ready and willing to practice their art, with or without provocation, whenever and wherever the opportunity offered. Comparatively few of the laity have had any opportunity to learn even a measure of the truth concerning scientific medicine, and those who devote their lives to its study and practice. . . . Rarely has the public press contained any medical articles of real merit, and even these few have too often been written by those who sought personal notoriety rather than to instruct the public. . . . The quack advertisements that occupy so much space in our papers and magazines . . . exercise the most potent as well as the most pernicious influence in the molding of the opinions of the masses. All these demoralizing influences have served to strengthen people in their superstitious faith in the miraculous, and to weaken their confidence in rational medicine and scientific methods. . . . When the general public learn from trustworthy statistics that not less than 500,000 men, women and children died last year from preventable dis-

eases . . . they will surely be impressed that they stand in distressing need of the wisest counsel and most effective aid . . . and will welcome any plan of cooperation from the medical profession that promises to bring blessings to mankind. . . . Our duty is clear. A systematic educational campaign should be commenced at once and kept up until the public is brought into close sympathy with the medical profession. . . . The more we study these questions the more evident it becomes that a large portion of all human maladies are due to ignorance or wilful negligence. . . . The ignorant should be taught and the wilfully negligent be restrained by popular sentiment, if possible—by stringent laws if necessary. . . . The time has come in the evolution of scientific medicine when we must educate the people through that greatest of all educators, the public press.

Public Health Planks in Political Platforms.

For the information of those interested in the proposed national health department, we give the various planks adopted by the different political conventions which have taken action on this subject. The Ohio State Republican Convention, which met in Columbus in May, 1908, adopted the following:

INCREASED FEDERAL CONTROL OF THE PUBLIC HEALTH.

We advocate the organization of all existing national public health agencies into a single national health department with such improved status, increased powers and ample financial support as will give the Federal Government the strongest possible control over all national public health interests.

INCREASED STATE CONTROL OF THE PUBLIC HEALTH.

We advocate (1) the extension of the powers of the state in relation to the public health by the appointment in each county of a deputy health officer vested with powers to give safe and adequate sanitary protection to the residents of the country and village districts; (2) sanitary control of all sources of public water supply; (3) a complete system of registration of births and deaths; (4) the enactment of a stringent pure food law, including the rigorous control of all milk supply; and (5) a campaign against the prevalence of tuberculosis.

REPUBLICAN PLANK.

The following plank was submitted to the committee on resolutions of the Republican National Convention at Chicago:

We endorse the movement designed to secure the organization of all existing national public health agencies into a single national health department, and favor such legislation as will effect this purpose.

This plank was materially changed in the committee, and appears in the platform as follows:

We commend the efforts designed to secure greater efficiency in the national public health agencies, and favor such legislation as will effect this purpose.

DEMOCRATIC PLANK.

The following plank was submitted to the committee on resolutions of the Democratic National Convention at Denver:

Believing a vigorous, healthy population to be our greatest national asset and that the growth, power and prosperity of the country depend primarily on the physical welfare of its people and on their protection from preventable pestilences of both foreign and domestic origin and from all other preventable causes of disease and death, including the sanitary supervision of factories, mines, tenements, child labor, and other places and conditions of public employment or occupation involving health and life, we advocate the organization of all existing national public health agencies into a national bureau of public health, with such powers and duties as will give the Federal Government control over public health interests not conserved by and belonging to the states, respectively.

This plank also underwent considerable change before it appeared in the final draft of the platform. As adopted, the plank reads as follows:

We advocate the organization of all existing national public health agencies into a national bureau of public health with such power over sanitary conditions connected with factories, mines, tenements, child labor and other such places as are properly within the jurisdiction of the Federal Government and do not interfere with the power of the states controlling public health agencies.

While the phraseology of both of these planks, and especially that one adopted by the Republican Convention, leaves much to be desired, yet it is encouraging to note that for the first time in our political history each of the two great political parties has added a public health plank to its national platform. The plank as first proposed for the Democratic National Convention is the most satisfactory of any yet drafted. Efforts should be made by all members of the profession, and particularly by all members of the Auxiliary National Legislative Committee, to secure the introduction of this plank into state conventions of both parties and to secure its adoption wherever possible.

The Work of One State Society.

In his presidential address delivered at the annual meeting of the Medical and Chirurgical Faculty of Maryland, Dr. Charles O'Donovan, after discussing the experience of this state society in securing legislation in Maryland during the past winter, refers to the number of physicians who are members of the legislature, and says:

It is to be hoped that this is the beginning of a worthy movement, which has been urged again and again on physicians in this country, and which should engage our attention most earnestly at this time when an immense wave of progress toward better conditions of health is sweeping irresistibly over the land, and the people are at last awakening to the full realization of the possibilities of preventive medicine. When they learn how much easier and cheaper it is to keep a man well and useful, than it is to treat and nurse him through a serious illness and long convalescence of enforced idleness, then will be heard an insistent demand for the improved administration of public health matters for which doctors have striven during the last fifty years. That time is surely coming, and we must prepare for it by placing ourselves in the vanguard of progress, ready to lead and direct the people in their groping toward the light of health. Inasmuch as a great deal of this must be accomplished through general or local legislation, there should be public-spirited physicians who stand prepared to do their share in the work at any personal sacrifice or inconvenience, either as advisors of those making or administering the laws, or even as lawmakers themselves. . . .

Another thing of the utmost importance that became apparent this winter was the excellent solidarity of the medical profession throughout the state. With a few hours' notice, we were able to assemble before any committee that gave a public hearing a sufficient number of representative doctors at any time, and when we wished, we could bring men from every part of the state to speak for the various county societies. . . . The united medical profession has this winter exerted a greater influence in the legislature than ever before and what we have been able to accomplish has been entirely for the benefit of the citizens of Maryland. This work has only been begun, the foundation has been well laid, but the superstructure must be reared, over which trained men must watch as the building grows.

The experience of the profession in Maryland, where thorough organization obtains, is in striking contrast with that of its sister state of Virginia, in which, owing to lack of adequate organization, the much-needed vital statistics act, advocated by the medical profession, was defeated by a lobby of undertakers, who were unwilling to take the trouble to secure burial permits, and who, consequently, defeated the bill.

Referring to the public lecture course instituted by the state faculty in Maryland last winter, Dr. O'Donovan says:

The faculty embarked on this enterprise with considerable trepidation . . . but with the opinion that there was a demand for such a course. The result amply justified this conclusion, for on two occasions we had audiences of about 500 people, and at every lecture the attendance was sufficient to show that the public is anxious to learn more about health matters and is willing to patronize such efforts at enlightenment as we gave. I feel sure that a similar course of lectures next year will be even more popular.

This is in accordance with the experience of other medical societies in the larger cities. As reported in THE JOURNAL last week, the public lectures held in Chicago under the man-

agement of the Chicago Medical Society during the past year had an average attendance of 140 and a maximum attendance of 350.

POSTGRADUATE COURSE FOR COUNTY SOCIETIES.

DR. JOHN H. BLACKBURN, DIRECTOR.
BOWLING GREEN, KENTUCKY.

[The Director will be glad to furnish further information and literature to any county society desiring to take up the course.]

Eleventh Month.

DISEASES OF THE KIDNEY.

First Weekly Meeting.

Anatomy of the Kidney.
Physiology of the Kidney.
Composition of Urine.

Second Weekly Meeting.

Uremia.
Etiology.
Symptoms.
Hematuria and Hemoglobinuria.

Third Weekly Meeting.

Movable Kidney.
Acute Nephritis.
Chronic Parenchymatous Nephritis.

Fourth Weekly Meeting.

Albuminuria.
Chronic Interstitial Nephritis.
Nephritic Colic.

Monthly Meeting.

Necessity of Routine Examination of the Urine.
Differential Diagnosis of Coma.
Early Diagnosis and Treatment of Chronic Nephritis.

FIRST WEEKLY MEETING.

Anatomy of the Kidney.

Exhibit Fresh Specimens.

Kidney: Situation, surface markings, important relations, size, weight, surfaces, borders and extremities. Relation of structures entering hilum.

Structure: Capsule, hilum, sinus, pelvis, calyces, pyramids. Cortical portion, medullary substance.

Microscopic Anatomy: Uriniferous tubule; trace from capsule to pyramid. Structure of tubule, character of epithelium in different portions. Renal vessels; trace from renal artery to vein, three sets of veins. Difference in afferent and efferent vessels of Malpighian tufts. Relation of artery, vein and tubule in kidney.

Nerve supply of kidney. Lymphatics.

Physiology of Kidney.

Secretion of Urine: Ludwig's theory. Bowman-Heidenhain theory. Function of glomerulas, blood pressure and pressure of urine in capsule. Effect (1) of increasing general arterial pressure, (2) of obstructing venous outflow, (3) of obstructing ureter.

Function of convoluted tubule. Character of epithelium, secretory or absorptive. Facts in favor of absorption, in favor of secretion.

Action of diuretics. Due to increase of blood pressure or direct stimulation of epithelium? Vasodilator and vasoconstrictor nerves.

Composition of Urine.

Physical characteristics. More important elements found. Nitrogen; origin, per cent. of proteid intake. 1. Urea nitrogen; per cent. of total, origin, where produced, importance. 2. Ammonia nitrogen; per cent., significance. 3. Creatinin nitrogen; origin, effect of exercise. 4. Purin body nitrogen; chemical relation of purin nucleus, hypoxanthin, xanthin and uric acid. Exogenous and endogenous origin of purin material.

Elimination of inorganic salts.

Medical Education and State Boards of Registration

COMING EXAMINATIONS.

CALIFORNIA State Board of Medical Examiners, Cooper Medical College, San Francisco, August 4-6. Secretary, Dr. Charles L. Tisdale, Butler Bldg., San Francisco.

NEBRASKA State Board of Health, State Capitol Building, Lincoln, August 5-6. Secretary, Dr. E. J. C., Sward, Oakland.

Illinois April Report.

Dr. J. A. Egan, secretary of the Illinois State Board of Health, reports the written examination held at Chicago, April 15-17, 1908. The number of subjects examined in was 16; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 54, of whom 48 passed and 6 failed. The following colleges were represented:

PASSED. College.	Year Grad.	Total No. Examined
George Washington University	(1905)	1
American Med. Miss. Coll.	(1903) (1906) (1907)	3
Chicago Coll. of Med. and Surg.	(1908)	5
College of P. and S., Chicago	(1898) (1902) (1906) (2, 1907) (1908)	6
Illinois Med. Coll.	(1908)	2
Northwestern Univ. Med. School	(1907)	2
Rush Med. Coll.	(1906) (18, 1908)	19
Indiana Med. Coll.	(1906)	1
University of Michigan	(1871)	1
Detroit Coll. of Med.	(1896)	1
Missouri Med. Coll.	(1886)	1
University of Virginia	(1865)	1
Bohemian University of Prague, Austria	(1906)	1
National University of Athens, Greece	(1905)	1
University of Palermo, Italy	(1906)	1
Royal University of Naples, Italy	(1903) (1907)	2
FAILED.		
Indiana Med. Coll.	(1907)	1
Jenner Med. Coll.	(1906)	1
National Med. Univ., Chicago	(1906) (1908)	2
Medical College of Indiana	(1892)	1
University of Michigan	(1872)	1

Florida April Report.

Dr. J. D. Fernandez, secretary of the Regular Board of Medical Examiners of the State of Florida, reports the written examination held at Ocala, April 13-14, 1908. The number of subjects examined in was 7; total number of questions asked, 70; percentage required to pass, 75. The total number of candidates examined was 30, of whom 27 passed and 3 failed. The following colleges were represented:

PASSED. College.	Year Grad.	Per Cent
Southern Medical College, Atlanta	(1894)	91.6
Atlanta School of Med.	(1907)	77.6
Atlanta College of P. & S.	(1906)	88.4
University of Georgia	(1906)	84.2
College of P. & S., Chicago	(1906)	78.6
American Med. Miss. Coll.	(1900)	80.6
Illinois Med. Coll.	(1901)	89.4
University of Louisville	(1907)	89.7
Tulane University of Louisiana	(1903)	85.2
University of Maryland	(1907)	91.7, 95.
Baltimore Medical College	(1890)	81.4
University of Michigan	(1902)	93.
Detroit College of Medicine	(1900)	78.1
Medical College of Ohio	(1895)	83.2
Miami Medical College	(1880)	83.
Dartmouth Medical College	(1896)	95.
Bellevue Hosp. Med. Coll.	(1893) 86.7; (1898)	85.
University of the South	(1906) 81.2; (1907)	79.2
University of Tennessee	(1907)	80.1
Memphis Hosp. Med. Coll.	(1901)	75.
Medical College of South Carolina	(1907)	86. 95.
University College of Medicine, Richmond	(1905)	86
Name of College not Obtained	(1907)	85.7
FAILED.		
Baltimore Med. Coll.	(1907)	66.7
Memphis Hosp. Med. Coll.	(1903)	67.7
Castleton Medical College	(1857)	35.

New Mexico January and April Reports.

Dr. J. A. Massie, secretary of the New Mexico Board of Health and Medical Examiners, reports the written examina-

tions held at Santa Fé, Jan. 13 and April 13, 1908. The number of subjects examined in was 12; percentage required to pass, 75.

At the examination held in January, the total number of candidates examined was 4, of whom 3 passed and 1 failed. Fifteen applicants were licensed on presentation of satisfactory credentials. The following colleges were represented:

PASSED.

College.	Year Grad.	Per Cent.
University of Kansas	(1906)	75.
Louisville Med. Coll	(1907)	75.
Ft. Worth University	(1901)	75.

FAILED.

Tennessee Med. Coll	(1906)	35.

LICENSED ON CREDENTIALS.

College.	Year of Grad.
Woman's Hospital Med. Coll., Chicago	(1890)
Rush Med. Coll	(1904)
Chicago Homeo. Med. Coll	(1889)
Louisville Med. Coll	(1878) (1886) (1889)
University of Louisville	(1893)
Tulane University of Louisiana	(1896)
University of Michigan	(1890)
St. Louis Med. Coll	(1882)
Kansas City Med. Coll	(1898)
Bellevue Hosp. Med. Coll., New York City	(1894)
Eclectic Med. Institute, Cincinnati	(1875)
University of Tennessee	(1891)
Jefferson Med. Coll	(1882)

At the examination held in April the total number of candidates examined was 10, all of whom passed. Thirty-two applicants were licensed on presentation of satisfactory credentials at this meeting. The following colleges were represented:

PASSED.

College.	Year of Grad.
University of Alabama	(1904)
Birmingham Med. Coll	(1908)
Denver and Gross Coll. of Med	(1906)
Northwestern Univ. Med. School	(1907)
University of Kansas	(1906)
University of the South	(1901)
Chattanooga Med. Coll	(1901)
Memphis Hosp. Med. Coll	(1900)
Kansas City Hahnemann Med. Coll	(1907)
Gate City Med. Coll	(1902)

LICENSED ON CREDENTIALS.

Georgetown University	(1896)
College of P. and S., Chicago	(1903)
Northwestern Univ. Med. School	(1901) (1902)
Rush Med. Coll	(1878) (1890) (1905)
Central College of P. and S., Indianapolis	(1904)
College of P. and S., Keokuk	(1876) (1898) (1900)
Drake University	(1886)
Kentucky University	(1905
Baltimore Med. Coll	(1906)
College of P. and S., Baltimore	(1894)
University of Maryland	1878)
University of Michigan	(1889)
Kansas City Med. Coll	(1899)
College of P. and S., Kansas City	(1903)
University Med. Coll., Kansas City	(1896) (1904)
Missouri Med. Coll	(1880)
Barnes Med. Coll	(1895) (1898) (1899) (1907)
St. Louis University	(1903)
Long Island College Hospital	(1893)
Western Reserve University	(1888)
Jefferson Med. Coll	(1884) (1900)
Medical Coll. of Virginia	(1897)

Nevada May Report.

Dr. S. L. Lee, secretary of the Nevada State Board of Medical Examiners, reports the written examination held at Carson City, May 4-5, 1908. The number of subjects examined in was 10; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 4, all of whom passed. Six reciprocal licenses were issued at this examination. The following colleges were represented:

PASSED.

College.	Year Grad.	Per Cent.
Coll. of P. and S., San Francisco	(1901) 80.7; (1907)	87.5, 91.7
Medical College of Ohio	(1883)	75.2

LICENSED THROUGH RECIPROCITY.

	Year Grad.	Reciprocity with
Northwestern University Med. School	(1899)	Wisconsin
Rush Medical College	(1890)	Illinois
Sioux City College of Medicine	(1900)	Iowa
University of Louisville	(1905)	Kentucky
University of Michigan	(1903)	Michigan
Wisconsin College of P. and S.	(1905)	Wisconsin

Marriages

WILLIAM L. WISE, M.D., to Miss Edna SoRelle, both of Lena, La., June 2.

OSCAR E. HEINS, M.D., to Miss Grace Brown, both of Maysville, Mo., June 14.

JAMES F. HILGENBERG, M.D., to Miss Grace Mix, both of Pesotum, Ill., June 17.

C. ROY JOHNSTON, M.D., Decatur, Ill., to Miss June Riggs, Saybrook, Ill., June 24.

HARRY V. KITZMILLER, M.D., to Miss Eva Lee, both of Smithshire, Ill., June 23.

WALLACE M. BURROUGHS, M.D., to Miss May Agnes Quilter, both of Chicago, June 27.

RALPH A. FENTON, M.D., to Miss Mabel Copley Smith, both of Portland, Ore., June 24.

C. M. JACK, M.D., Niantic, Ill., to Miss Charlotte Nelson, Bloomington, Ill., June 18.

EUGENE HENRY KELLY, M. D., to Miss Alice F. Sams, both of Kansas City, Mo., June 13.

JAMES CHISHOLM HILL, M.D., to Miss Sara Ellen Henry, both of Abbeville, S. C., June 24.

WILLIAM J. CARTER, M.D., Mattoon, Ill., to Miss Bessie Leckie of Galt, Ont., June 24.

JOHN MULLONEY, M.D., Philadelphia, Pa., to Miss Emily Evans of Easton, Pa., June 30.

ORAL S. ROBUCK, M.D., to Miss Margaret Gwladys Thomas, both of Gomer, Ohio, June 24.

LESTER PAGE HOOLE, M.D., to Miss Marjory Haydock Wills, both of Brooklyn, N. Y., July 1.

HENRY D. HULLEY, M.D., Griswold, Iowa, to Miss Cora O. Shelby, of Odebolt, Iowa, June 22.

ERNEST M. LING, M.D., Laporte, Mich., to Miss Ella Maude Moon, of Detroit, Mich., June 30.

LAWRENCE J. DERVIN, M.D., to Miss Alice M. Fitzmaurice, both of Somerville, Mass., recently.

JAMES ARCHER HERVEY, M.D., Traer, Iowa, to Miss Goldie Stiles of Des Moines, Iowa, June 23.

HENRY B. BRISTOW, M.D., to Miss Bunnie Gresham Tyler, both of Tappahannock, Va., June 28.

THOMAS HARMON DENNE, M.D., to Miss Mildred Alice Gregory, both of Waterloo, N. Y., June 24.

GEORGE W. LINCOLN, M.D., Camden, N. J., to Miss Effie J. Garwood of Medford, N. J., June 24.

ELLSWORTH G. BEERS, M.D., Springfield, Mo., to Miss Ethel A. Lynn of Kansas City, Mo., June 18.

MASON GUILL, M.D., Nashville, Tenn., to Miss Amanda Lipscomb of Winchester, Tenn., June 23.

CHARLES A. LAMONT, M.D., Albion, N. Y., to Miss Eva K. Bowman, at Baltimore, Md., June 25.

WILLIAM HENRY BURMEISTER, M.D., Neihart, Mont., to Miss Jose Bergin King of Chicago, June 24.

RASTUS RANSOM NORRIS, M.D., Baltimore, Md., to Miss Lillian Horsey of Crisfield, Md., June 24.

LAWRENCE H. PENDERGRAST, M.D., to Miss Margaret Cecelia Cullen, both of Memphis, Tenn., June 24.

RALPH ROLLIN CHASE, M.D., to Miss Belle Du Charme Ripley, both of Eau Claire, Wis., June 1.

CHARLES H. MUSCHLITZ, M.D., Philadelphia, Pa., to Miss Minnie F. Roper of Slatington, Pa., June 30.

ALLEN KERR BOND, M.D., Baltimore, Md., to Miss Louise Birckhead Gambrall, at Baltimore, Md., July 2.

THOMAS MULLIGAN, M.D., Grand Forks, N. D., to Miss Margaret McQuade of Seaforth, Ont., June 24.

THOMAS HOUSTON DOW GRIFFITTS, M.D., Springfield, Ill., to Miss Elizabeth Anne Glynn of Cairo, Ill., June 30.

JOHN MCCAMPBELL, M.D., to Miss Maggie Thompson, both of Morganton, N. C., at Asheville, N. C., June 23.

JOHN WILSON FUQUA, M.D., Greeley, Colo., to Miss S. Elizabeth Mathias of Cincinnati, Ohio, at Denver, Colo., June 30.

JAMES MALCOLM MILLER, M.D., Villa Grove, Ill., to Miss Inez A. Whitworth of St. Louis, Mo., at St. Charles, Mo., recently.

Deaths

Frank Hugh Montgomery, M.D. Rush Medical College, Chicago, 1888; associate professor of skin, genitourinary and venereal diseases, Rush Medical College; attending dermatologist to St. Elizabeth's, St. Anthony de Padua and Presbyterian hospitals; a member of the consulting staff of Oak Park Hospital; a member of American Medical Association, American Dermatological Association, Congress of American Physicians and Surgeons, Illinois State Medical Society, and of Chicago Medical, Pathological and Medicolegal societies; co-author of "A Practical Treatise on Diseases of the Skin," "A Manual of Syphilis and the Venereal Diseases," and other works on these subjects; who had achieved national prominence as an authority in his specialty; was accidentally drowned while boating on White Lake, Mich., July 14, aged 46.

James Porter Heavrin, M.D. Kentucky School of Medicine, Louisville, 1882; a member of the American Medical Association; physician to Owensboro City Hospital; president of board of examining surgeons for U. S. Pension Board at Owensboro; died suddenly at his home in Owensboro, Ky., June 30, aged 57.

Isaac A. Wintermitz, M.D. Miami Medical College, Ohio, 1882; of Colorado City, Colo.; a member of the Colorado State Medical Society; died in St. Francis Hospital, Colorado Springs, July 3, from blood poisoning, contracted while treating a patient similarly affected, aged 46.

Albert Watson Sterling, M.D. Jefferson Medical College, Philadelphia, 1871; a member of the West Virginia State Medical Association; one of the oldest practitioners of Fairmont, W. Va.; died at his home in that city, June 30, from locomotor ataxia, aged 59.

Florence Donohue, M.D. University of Georgetown, Washington, D.C., 1872; a veteran of the Civil War; first vice-president of the U. S. Historical Society; died at his home in Washington, D. C., June 24, after a long illness, aged 66.

Samuel Rothacker (Years of Practice, Ohio); of Richmond, Ohio, a veteran of the Civil War; died at his home in that city, June 25, as the result of injuries received in March, when he was trampled under the hoofs of a horse; aged 83

Samuel C. Primrose, M.D. Halifax Medical College, (N. S.), 1872; of Lawrencetown, N. S., one of the best known practitioners of Nova Scotia; died at the Victoria General Hospital, Halifax, of nephritis, July 1, aged 71.

Louis Avida Demers, M.D. Medical Department Victoria College, Toronto, 1874; a member of the medical faculty of Laval University, Montreal; died suddenly at his home in Montreal, June 24, from syncope, aged 58.

Hans L. Brynildsen, M.D. (Years of Practice, Minn.); a member of the American Medical Association; a practitioner of Vasa, Minn.; died at his home in that city from cancer of the stomach, June 29, aged 58.

William Monroe, M.D. Rush Medical College, Chicago, 1869; a prominent citizen of Monroe, Wis.; a veteran of the Civil War and Black Hawk War; died at his home in Monroe, July 3, of paralysis, aged 90.

Simon P. Snyder, M.D. Medical Department Wooster University, Ohio, 1880; a member of the Ohio State Medical Society; died at his home in Cleveland, Ohio, of heart disease, June 25, aged 56.

Alexander F. Joseph, M.D. Cincinnati College of Medicine and Surgery, 1862; of Cincinnati, who had been suffering from heart disease for some time, was found dead in his bed, July 1, aged 68.

Everett W. Woodson, M.D. University of Pennsylvania, Department of Medicine, 1854; formerly a practitioner at Cuero, Texas; died at the home of his son, in San Antonio, July 1, aged 77.

Attilla M. Hutchinson, M.D. Hahnemann Medical College, Chicago, 1883; formerly of Hutchinson, Kansas; died at his home in Winfield, Kansas, of paralysis, June 28, aged about 61.

Anna Wood, M.D. Northwestern University Woman's Medical School, Chicago, 1889; of Terre Haute, Ind.; died at her home in that city, July 1, after an illness of several months, aged 56.

Benjamin D. Braswell, M.D. Maryland Medical College, 1904; of Oscilla, Ga.; died at a private sanitarium in Atlanta, after an illness of several months' duration, June 24.

James H. Converse, M.D. United States Medical College, New York, 1880; of Danville, Ill.; died at his home in that city, June 28, after a short illness, aged 66.

Martin S. Rochelle (Years of Practice, Kansas); of Wichita; died at his home in that city, after an illness of eleven months, from paralysis, June 25, aged 66.

J. H. Woosley (Years of Practice, Kentucky); for forty years a practitioner; died at his home, Glasgow Junction, Ky., June 30, of heart disease, aged 83.

Frank O. Culter, M.D. Pulte Medical College, Cincinnati, 1888; of Gibson City, Ill.; died in Chicago, June 26, after an operation for gallstones, aged 48.

George W. Waggoner, M.D. Hahnemann Medical College, Chicago, 1882; of Corry, Pa.; died at his home in that city, June 25, of nephritis, aged 51.

Orville W. True (Years of Practice, Maine); a leading homeopathic physician of Farmington, Maine; died June 27, of carcinoma of the liver, aged 54.

William H. Warner, M.D. Ohio Medical College, 1871; of Crothersville, Ind.; died at his home in that city, July 5, of heart disease, aged 67.

Alexander E. Bowman (Years of Practice, Ill.), of White Hall.; died at his home in that city, June 19, from senile debility, aged 91.

John Cook Shaw (Years of Practice, Mass.), of New Bedford, Mass.; died at his home in that city, July 2, of diabetes, aged 51.

William T. Hubbs, M.D. University of Louisville, 1879; of Camden, Tenn.; died at his home in that city, June 26, aged about 62.

Orrin I. Hall, M.D. University of Buffalo, 1873; of Zumbrota, Minn.; died at his home in that city, June 25, aged 66.

Death Abroad.

E. Albrecht, M.D., director of the Institute of Pathologic Anatomy at Frankfurt a. M., died, June 20, aged 36. Notwithstanding his comparative youth, Albrecht had long taken a leading place among pathologists.

Society Proceedings

COMING MEETINGS.

American Public Health Association, Winnipeg, Can., Aug. 25-28.
American Acad. of Ophthal. and Oto-Laryng., Cleveland, Aug. 27-29.
Wyoming State Medical Society, Sheridan, Aug. 28.

NEW HAMPSHIRE MEDICAL SOCIETY.

One Hundred and Seventeenth Annual Meeting, held at Concord, May 14-15, 1908.

(*Continued from page 163.*)

A Gynecologic Report.

DR. H. L. STICKNEY, Manchester, described four very complicated cases, all in women, which came under his observation at Hillcrest Hospital. Dr. Stickney stated that it had always been his custom to remove the appendix at the time of any operation on the pelvic organs, if convenient to do so, and the condition of the patient did not make it unwise.

The Loss to Physicians from Hospital Work.

DR. A. NOEL SMITH, Dover, said that hospitals are a blessing, indeed, a necessity, to the community. The large cities are well supplied with them, but the smaller cities and towns are also getting to be well equipped. It is all right for rich men to give of their abundance to found and maintain hospitals, however, but he is firmly convinced that it is wrong for the average physician to contribute so lavishly of his means, his time, and his ability toward the success of these institutions. Men and women give of their abundance a single gift, therewith furnishing a hospital room or ward, and their names are engraved on tablets to perpetuate the fact. And this is well. The physician or surgeon bestows his gifts of time and labor, which represent money, and does this perennially. However, no note is taken of it, except an occasional vote of thanks; and thanks never yet bought shoes for the babies,

or purchased horses, carriages, and automobiles which are the doctor's necessities. His only tablet is the possible gratitude of the patient who recovers, and a threatened suit for malpractice if the patient dies.

In the speaker's judgment, as in that of many other physicians, it is high time to consider and to act on the subject of some form of remuneration for the medical and surgical staffs of hospitals.

Dr. Smith cited several instances which had come under his observation, where well-to-do people had been treated and operated on free at hospitals. "And we physicians," said the speaker, "in whose hands the entire adjustment of this matter rests, stand foolishly helpless and witness our incomes thus depreciated!"

He stated that his work along this line had received the hearty approval and support of other physicians and read several letters from different members of the medical profession, indorsing his course of action in this matter; and he urged that something be done to remedy this situation by the members of the New Hampshire Medical Society.

DISCUSSION.

DR. LOUIS W. FLANDERS, Dover, said that there seems to have been from time immemorial an unwritten law that the physician should give more of his time to philanthropic enterprises than any other member of the community.

DR. JOHN W. PARSONS, Portsmouth, could discover no reason why a person should not pay for medical services rendered in a hospital the same as when furnished out of a hospital. In fact, in many instances, the services in a hospital are more valuable because of the environment. The physician can do better work, get better results for the patient and himself, and the physician should be paid by somebody. If a hospital has income enough to warrant it, the medical man could be paid by the corporation in the form of a salary, or, better, according to the work or its attending responsibility. It seemed to him, however, that it is a more business-like method for the patient to pay the doctor who works for him. But, before any step is taken, there should be a settled unanimity among physicians unflinchingly to support the proposition that physicians doing work at the hospital shall charge the same fees as in work outside of the hospital, collecting their bills, if they can, as in ordinary business. If the patient can not pay the standard prices, admit him or her on such terms as are just; likewise permit the physician to make similar arrangements; hospital and doctor to collect if possible. Emergency cases should be admitted without question, and the matter of pay settled according to the circumstances. But we must try to disabuse people of the notion that they can get everything for nothing from hospitals and physicians. In concluding, the speaker said: "When I do charity work, I wish to know it at the time. I do not like to find it out afterward. Compulsory charity is not charity, it is theft, and is obnoxious and irritating. Voluntary charity is felicitous and inspiring, and there is no class of men who give so much of their time and skill as the medical profession."

DR. A. H. HARRIMAN, Laconia, stated that in his town, by the aid of some philanthropic people, they had recently been able to start a hospital. But, before the hospital was started, all hands got together and made a solemn vow that they were not going to diminish their income, if they could help it, by reason of having a hospital, and he did not believe they had done so. Every person who had entered that hospital had been taken care of, and the charges had been just the same as if they had been taken care of at their homes or anywhere else. He did not think they had lost a great deal by charging fees, and he did not see why anyone should.

DR. A. C. HEFFINGER, Portsmouth, stated that at the Portsmouth Hospital he believed there was very little of the abuse of free hospital service, and that whether the patients went into the wards or into private rooms, if they were able to pay, they paid. There was no surgical staff or medical staff at this hospital, and no specific free treatment, but each physician goes on when his turn comes, a month at a time, and is supposed to treat free patients, but during the last period of Dr. Heffinger's service he had not had one such patient.

DR. JAMES T. GREELEY, Nashua, stated that at Nashua the suggestion of Dr. Smith and Dr. Heffinger had been followed out. the poor have always been treated gratuitously in Nashua, but it has always been insisted on that it shall be the poor who receive gratuitous treatment. Emergency cases are always received in the hospitals without question, but they are investigated afterward. Those people who receive gratuitous care are either of the city or county poor. All others pay their physicians independently of the hospital, according to their ability. In other words, there is an arrangement made directly between the attending physician and the patient, and it has worked very harmoniously. The speaker called attention to the fact that the patient who pays for his accommodation and selects his own physician to attend him, is not pauperized, which makes a difference in the feeling of the patient, and in the patient's relation to the doctor.

DR. A. W. MITCHELL, Epping, said that all the speakers so far had been doctors connected with hospitals. He happened to be, unfortunately, a little fellow out in a little town where there is no hospital, and he wanted to make a plea for himself and lots of others like him. He was situated about equal distance from Dover, Portsmouth, Nashua and Manchester, and so strong was the suction brought to bear from those places that he had only a little hair left on his head. The fact was that when they had sent patients into the larger towns to seek the larger and better men, great inducement had been—at least in the past, though, perhaps, not so much so now—brought to bear on those people to go into the hospitals, so that some of the physicians of those cities were now getting overburdened.

DR. FORREST L. KEAY, Rochester, suggested that if some means could be found whereby the rest of the profession could relieve some of those who were carrying so heavy a burden by doing the work for them when they had a patient to operate on, it might lighten it.

Movable Kidney.

DR. ERNEST L. BELL, Plymouth, stated that 85 per cent. of the cases of movable kidney occur in women. He suggested as a possible explanation the fact that the recess in which the kidney lies is deep and funnel-shaped in the male, while in the female it is shallow and more cylindrical. He also stated that the displacement of the right kidney is fifteen times more frequent than that of the left, and this, he thought, not to be a mere matter of coincidence, but probably due to the fact that the right kidney, with the liver superimposed, is slightly lower than the left, and is in intimate relation in its lower third with the posterior and extraperitoneal portion of the ascending colon. Through this contact with the colon a decided downward pull comes on the right kidney from the forced peristalsis of the loaded bowel during its constant effort to overcome the force of gravity in passing upward its fecal contents. Dr. Bell stated that movable kidneys are more often found in women from 30 to 40, who have worked hard and had many children, and that certain physical characteristics play an important part in predisposing to displacement, namely, abnormality, which may tend to flatten and make shallow the normal paravertebral fossæ, which explains the fact that palpable kidneys are found almost always in long-waisted, slender bodied women.

He described at length the symptoms of movable or displaced kidney, and the different methods of treatment, particularly the so-called Conant method of fixation, of which he said that the simplicity of the operation and its uniformly good results so appealed to him that he had recommended this procedure in all of his cases requiring an operation, and in none of the operations done by this method had he derived other than great satisfaction from its use. He further emphasized it as vital to the success of any operation that all the lesion coexistent with that of the kidney should be taken care of. To anchor a prolapsed kidney and leave a diseased appendix or gall bladder, a lacerated peritoneum or cervix was to invite failure. He described several cases.

DISCUSSION.

DR. GILE, Hanover, stated that he was somewhat more skeptical about the great frequency of symptoms than was Dr.

Bell; that is, as to whether the subjective symptoms the patient might have were due to movable kidney, even though the kidney should be found to have greater or less mobility. He agreed with Dr. Bell that whenever an operation was performed for movable kidney, the greatest care should be exercised in investigating all other organs to see if there was not other disease, stating that he believed a great many times when a movable kidney was detectible, the subjective symptoms the patient might have depended more likely on a diseased appendix than on the mobility of the kidney. He preferred the lumbar incision.

DR. FRANK BLAISDELL, Goffstown, said that personally he had never found anything better than the oblique lumbar incision for exposing the kidney, and for safe anchorage of the kidney after it had been exposed preferred one of the capsule-splitting methods. He explained the method fully. But while disagreeing with Dr. Bell as to the Conant method being the best, he acknowledged that Dr. Bell had had splendid success with it, and stated it as his opinion that individual preference had much to do with like or dislike of any particular method; that we liked a thing because we were familiar with it.

DR. WILKINS, Manchester, commended the usual lumbar incision, opening the fascial capsule and removing the fat from inside it, and stitching the capsule tightly around the lower half of the kidney, and then packing beneath it with gauze, leaving the gauze there for two weeks. He described the advantages.

DR. M. E. KEAN, Manchester, stated that the majority of men were discontinuing the fixation of the kidney in cases of movable kidney, unless other conditions exist at the same time which require it.

(To be continued.)

AMERICAN PEDIATRIC SOCIETY.

Annual Meeting, held at Delaware Water Gap, Pa., May 25-26, 1908.

(Continued from page 158.)

A Plan of Dealing with Atrophic Infants.

DR. HENRY D. CHAPIN, New York, presented this paper, the essential plan of treatment being that of fresh air. Most satisfactory results were reported in cases suffering from malnutrition because of bottle feeding. He advocated obtaining individual environment for these children. Institutions and hospitals should be only a "hold up" for acute conditions, and the children should be got out of the institutions as soon as possible; they should be boarded out in the country.

DISCUSSION ON FRESH AIR.

DR. AUGUSTUS CAILLE, New York, said that he was in full accord with everything expressed by the three essayists. Twenty years ago he had tried to get those in control to understand the importance of fresh air to children, but his attempts had been unavailing. At present they were using a roof garden. He believed that the breathing of fresh air was the most important therapeutic agent we possessed.

DR. A. JACOBI, New York, referred to his experience in 1870 when he had proposed boarding out infants and had shown those in charge that of 100 patients admitted to the institution and retained there over three months 100 died. He had been asked to resign for expressing such views and finally left the institution. He approved heartily of the endeavors of Dr. Chapin in this direction and was glad he had been more successful. He believed that rachitis was due more to bad air than to bad food and advocated the fresh air treatment for that disease, which he said 50 years ago was hardly known in the United States, before emigration and poverty had existed to such an extent.

DR. R. G. FREEMAN, New York, referred particularly to the fresh air treatment in measles; all the cases that had been put out had done remarkably well. He agreed with Dr. Jacobi as to rachitis.

DR. E. M. BUCKINGHAM, Boston, reported cases of pneumonia suffering with dyspnea in the hospital and relieved by putting them out in the air even after the failure of administration of oxygen.

DR. C. B. PUTNAM, Boston, said that when he first became connected with the Massachusetts Infant Asylum, 35 years ago, they were just beginning to farm out a few of the children. Now, of 125 patients, less than 25 were kept in the hospital—the rest were boarded out in the country and there had been a remarkable reduction in mortality.

DR. L. E. LAFETRA, New York, said that the objections made to the treatment in private practice could be overcome by using the inside awnings which allowed the child to breathe the fresh air without being exposed.

DR. CHARLES G. KERLEY, New York, said that he had been surprised at the readiness with which intelligent people took up this feature of treatment.

DR. F. S. CHURCHILL, Chicago, thought the people were very ready to carry out this form of treatment—much more ready than the profession at large realized. He had no difficulty whatever in private practice and in dispensary work he had assistance by having one of the nurses follow up the cases—going directly into the home and looking after them.

DR. WILLIAM P. NORTHRUP, New York, in closing, said that as we had raised the standard of quality of milk and of the drinking water supply so we should bring into prominence this other hygienic consideration. Fresh air, he said, was so cheap that it was not appreciated. As Oliver Wendel Holmes had said:

> God lent his creatures light and air and waters open to the skies;
> Man locks him in a stifling lair and wonders why his brother dies.

The Need of Postgraduate Instruction in Pediatrics.

DR. AUGUSTUS CAILLE, New York, said that there was still a lack of system and conformity in making a medical practitioner. As a pediatrist the average graduate was sadly deficient, unless he had had the good fortune to spend six months as an interne in a childrens' hospital. Practical instruction was urgently needed. A large ambulatory service was one of the essentials for such teaching. Bedside teaching, to be of value, should permit the student to visit the ward at a set time two or three hours each day. He thought that the broadening influence of pediatric study had not been sufficiently emphasized. There was urgent need for practical postgraduate study.

Modern Laboratory Feeding and the Wide Range of Resources Which It Provides.

DR. THOMAS MORGAN ROTCH, Boston, stated that what he wished to place before the profession was the result of his seventeen years' study of the advance through laboratory methods. He pointed out that the resources of the milk laboratories were such that physicians could prescribe combinations of any known food. He explained that it was no longer necessary to feed an infant with a patent or proprietary food because that food had seemed to agree best with an individual with a weak digestion. He stated that careful chemical analysis had now made us familiar with the food constituents of all the patent and proprietary foods. Consequently it was now possible to make at the laboratories exactly the same combinations as appeared in these patent foods and the prescription for these compounds could be written in percentages. He pointed out that each of the advances that had been made in the combination of the ingredients of the various food stuffs had really emanated from the chemists in charge of the milk laboratories. Of special importance, next to that of the work on the separated proteids, whey and casein, which now for some years had been obtained from the laboratories, was the possibility of prescribing the carbohydrates to a much wider extent than ever before. He explained why and how maltose was preferably used instead of lactose in cases where there was an over production of lactic acid, and how, on the contrary, where there was an over production of butyric acid, lactose was preferable to maltose. He showed how it was no longer necessary to make use of the mechanical action of the starches in making the casein precipitate final, since the divided proteid accomplished this much better and much more intelligently. He explained also how the supposed value of a well known patent food, whose chief ingredient was maltose,

could be obtained on a laboratory prescription by simply prescribing dextrinized starch and thus obtaining besides maltose a residue which corresponded to that in the above mentioned food; in both cases the residue being what was claimed for the food in regard to its laxative properties. He stated that it was a mistake to think that centrifugal cream must necessarily be used in the laboratory prescriptions, and that, on the contrary, the laboratory was always willing to make up the prescribed fat combinations from gravity cream when this was asked for by the prescribing physician. One of the greatest advances, he said, which had been made within the last year in regard to the possibilities of laboratory modifications on physicians' prescriptions, when wishing to use laboratory methods, was the use of the lactic acid bacillus in pure culture. It was well known that there were a great many different strains of the lactic acid bacillus, some good and some inferior; but a strain had now been obtained and was kept at the laboratories which was exceedingly successful in killing the special ferment which produced the fermentative diarrheas; and the physician could now prescribe the pure culture of lactic acid bacillus for cases of this kind and its use had been followed by the greatest success. He also showed how, by simply prescribing a certain percentage of lactic acid this degree of acidity could be used for purposes of digestion without necessarily allowing the process to go further.

Dr. Rotch finally said that he had attempted to prepare a prescription card for the profession at large, which could be used for prescribing any compound of foodstuffs and any of the ingredients in the required percentage, and this prescription card would have on one side of it explanatory notes which would enable the physician to see at once what percentages of the different combinations should be used. He expressed his appreciation of the information which he had obtained from Prof. Howe of the State Normal School in connection with all the good work which had been lately done under his supervision at the Walker-Gordon laboratories. The prescription blank represented on one side an explanation of why each of the several compounds which could be obtained at the laboratory were used; the name of the compound came in the next column, for instance, fat, lactose, maltose, lactic acid bacillus, etc., and then percentage columns came on the other side again, in which the definite figures could be placed.

DR. L. EMMETT HOLT, New York, had also been working along these lines. He had found that gastric digestion went forward largely according to the amount of HCl present. In no single one of the experiments had there been found a deficiency of pepsin in the infant's stomach, but there had been found great variation in the amount of HCl.

DR. HENRY D. CHAPIN, New York, also advocated the scientific application of the various diluents that had been found useful. He had also read a paper, written with the same object with which Dr. Rotch had prepared his paper, namely, to find if we could not as physicians utilize the good in them in a scientific way. He believed that the whole subject of infant feeding could only be satisfactorily studied from the biologic standpoint.

DR. AUGUSTUS CAILLE, New York, respected the scientific methods but thought they could be managed only in the hands of a few persons.

DR. J. P. CROZER GRIFFITH, Philadelphia, was a thorough believer in all that was being done in the matter of feeding scientifically but thought it difficult to teach it in a way that would enable the average student to comprehend it.

DR. W. P. NORTHRUP, New York, said that the great triumph of the laboratory to his mind had been the lesson in the production of a pure milk with a known fat content of unvarying degree.

Status of the Kindergarten.

DR. ISAAC A. ABT, Chicago, said that, in reply to inquiries sent out, he had 119 replies from physicians, 66, or 55.46 per cent. in favor of the kindergarten; 25, or 21 per cent., unfavorable, and 28, or 23 per cent., indifferent. In the hope of throwing some light on the medical aspect of the kindergarten question the investigation of which the paper was a report was instituted. He had sent questions to physicians in various parts of the country and to kindergarten teachers and mothers. From the mothers there had been 70 replies; favorable 43 or 61.42 per cent.; unfavorable, 11, or 15.71 per cent.; indifferent, 16, or 22.85 per cent. Of 43 replies from superintendents, 32, or 74.41 per cent. were favorable; 5, or 11.64 per cent. unfavorable; 6, or 13.95 per cent. indifferent. Of kindergartners 26 replies; 25, or 96.15 per cent. favorable. Of 21 replies from primary teachers, 14, or 66.66 per cent., were favorable; 3, or 13.33 per cent. unfavorable; 4, or 19.03 per cent. indifferent. From the standpoint of physicians, 42 favorable and 15 unfavorable from the east; 17 favorable and 6 unfavorable from middle west; 3 favorable from the west; 2 favorable from the north, and 1 each favorable and unfavorable from the south. Twelve kindergartners wrote of proper or improper conditions existing. The best average age to commence was put at five years. Of all physicians 47.90 per cent. favored kindergarten for both rich and poor.

DISCUSSION.

DR. THOMAS MORGAN ROTCH, Boston, said that the chronologic age of the child should be ignored. Children should not be classified in that way, but by their development.

DR. WILLIAM P. NORTHRUP, New York, thought that in the future pediatrists would take more interest in the kindergarten.

DR. F. S. CHURCHILL, Chicago, thought that the opinions about the kindergarten among medical men and a great many mothers arose from error as to its true object. The well regulated kindergarten tried to steer the mental development of the child. He feared there were too few kindergartners who properly grasped the idea. The kindergartner should be a very highly paid teacher so that a high class would be attracted to the work. The mother was not a professional trainer of children and he would prefer to put the child with a professional rather than with an amateur.

DR. HENRY D. CHAPIN, New York, agreed with Dr. Churchill that the kindergartners should be better paid and have a better status. The same thing was radically wrong in the public school system; teachers were graded according to the size and age of the scholars; the early age was the critical time, and yet the younger scholars had the less experienced teachers.

DR. CHARLES G. KERLEY, New York, thought the matter rested entirely with the nature of the child's surroundings at home; if the child could have proper outdoor life and attention at home that was by far the best place, but there was a class of children in every city to which the kindergarten was a Godsend.

The Hard Curds of Infant Stools; Their Origin, Nature and Transformation.

DR. THOMAS S. SOUTHWORTH and DR. O. M. SCHLOSS, New York, said that the discovery that the firm, rounded curds occurring not infrequently in the stools of infants fed on cow's milk were composed in part of fatty acids and soaps had led to considerable discussion and warranted a further inquiry as to the origin of such bodies. The claim had been made of late that these bodies were simply aggregations of soaps and fatty acids containing no proteid and by implication not entitled to be called curds. This was based largely on the statements of Czerney and Kellar. Typical firm curds occurring in 75 stools passed by 38 infants were subjected to qualitative chemical tests to determine the presence of proteids, soaps and fatty acids. All of these masses responded to the tests for protein, no matter whether they were hard or soft, and regardless of the presence of soaps, neutral fat, or fatty acids; the ordinary stool substance, in which these masses were embedded, when subjected to the same procedure and tests, did not give the protein reactions.

DISCUSSION.

DR. I. A. ABT, Chicago, thought that there was no more fertile field for investigation than this, particularly in view of the reports from the Berlin and Breslau schools, which led to the belief that there was no such thing as proteid indigestion. He had fed babies that suffered from what he supposed to be fat indigestion on perfectly fat-free milk and had found that there was in the stools a curd that corresponded to the one described by the essayist

DR. J. LOVETT MORSE, Boston, said that his assistant had been at work along the same line and had gone into it very elaborately, working the matter out quantitatively as well as qualitatively, and he had found that the basis of the large curd in every case was a proteid. He had also found that the amount of fat in the curd varied almost exactly with the amount of fat in the food, showing that the fat was merely caught in the meshes of the curd. They also found these large curds in babies that were taking barley water.

Fat and Proteid Content of Top Milk.

DR. CHARLES A. FIFE, Philadelphia, had used the Chapin dipper in obtaining the top milk. The results epitomized were shown by charts. The fats in the top quarts, in 17 analyses of 4 ounces, highest, 32.2; lowest, 17.8. In the lower grade milks the variation was much less than that. In the higher grade milks the variation was much greater. The proteids were very uniform throughout, but in the higher grades the proportion of proteids was very much less than was usually believed; considerably below 3 per cent.; about 2.75 per cent. As to variation between pints and quarts—the quarts were, as a rule, more uniform than the pints, but almost always a little higher; about ½ per cent. higher—not enough to make any practical difference in the modifications. As to the composition of the bottom milk there was very little difference between the lower 24 ounces and the lower 8 ounces, so that it was not necessary to depend on the lower 8 ounces to get a so-called fat-free milk. As to proteids there was very little difference.

The Urinary Findings in a Series of Infants Suffering from Intestinal Infection.

DR. J. H. MASON KNOX and DR. J. C. MEAKINS, Baltimore, said that they had taken 72 infants for the basis of this study, of which 19 were used as controls, in whom the urinary findings were negative and in whom there was no intestinal infection. Malnutrition, 6; diarrhea, 6; indigestion, 4; 53 cases of definite intestinal infection; of these 33 toxic cases and 29 ileocolitis. In 31 of the 53 no urinary changes had been found; in 32 definite abnormalities had been found. Of these 53, more than one-half were in the middle of the first year. Duration of illness had averaged about ten days to six weeks. There were 34 boys and 19 girls. Cases according to urinary findings were divided into three classes: (1) Those containing only albumin, or albumin and casts; (2) those in which pus was found; (3) those in which in addition to pus there were albumin, casts and bacteria and red blood cells. He concluded that infection of the urine occurred almost as frequently where the cases were toxic as where there was very definite intestinal lesion; that infection had its origin in the intestinal canal and then reached the kidneys secondarily.

DR. I. A. ABT, Chicago, said that these might not be purely or simply intestinal lesions but indications of perversion of metabolism with the production of toxic substances, much the same as certain constitutional diseases produce acidosis. This would seem especially true in view of the fact that the intestinal lesions were sometimes slight in comparison with the severity of the condition.

ARKANSAS MEDICAL SOCIETY.

Thirty-Second Annual Meeting, held in Little Rock, May 12-15, 1908.

Election of Officers.

The following officers were elected: President, Dr. J. T. Clegg, Siloam Springs; vice-presidents, Dr. E. K. Williams, Arkadelphia; Dr. J. L. Hall, Pocahontas; Dr. B. D. Luck, Pine Bluff; secretary, Dr. Morgan Smith, Little Rock; treasurer, Dr. J. M. Scales, Pine Bluff; delegate to American Medical Association, Dr. C. C. Stephenson, Little Rock; alternates, Dr. G. A. Warren, Black Rock, Dr. B. Hatchett, Fort Smith; new councilors; Second district, Dr. H. O. Walker, Newport; Fourth district, Dr. William Breathwit, Pine Bluff; Sixth district, Dr. J. H. Weaver, Hope; Eighth district, Dr. C. P. Meriwether, Little Rock; Tenth district, Dr. F. B. Young, Springdale. Pine Bluff was selected as the place of meeting for 1909.

The question of admission of undergraduates was indefinitely postponed, and recognition of Southwest Medical Association was deferred.

The section of Article IV. of the constitution which permitted members of House of Delegates to hold office in the society was repealed.

DR. JOSEPH PRICE, Philadelphia, and DR. C. C. BROWNING, Los Angeles, were guests at the society.

Education of the Public and Progress in Medicine.

DR. JOSEPH PRICE, Philadelphia, made a plea for the wider dissemination of medical knowledge among the laity, especially among women and young children. Our women, he said, should be improved mentally and physically; to have big men we must have big mothers. The number of specialists should be multiplied and they should abound in every-day life. Arkansas has 75 counties; she should have 75 polyclinics and 75 postgraduate schools. She has 75 poor-houses and 75 jails full of good material which should be self-supporting. Untold good is done by teaching others. Recently he met an old pupil who reported 138 appendicectomies with one fatality. He scolded him for losing that one, which the practitioner admitted was most likely due to faulty technic. Dr. Price cautioned his audience not to despise the day of small beginnings, referring earnestly to the great work of McDowell, Sims, and others, who, at the outset, were compelled to use the very crudest of accessories, their clinics being organized in woodsheds, stables, etc., yet these humble beginnings marked the foundation of the greatest progress in the work of ameliorating the sufferings of mankind which the world has ever known. Much remains to be done and there is much that can be achieved by the assiduous hard worker along lines of original research work; poor facilities should not be viewed as insurmountable difficulties. He believes that the crying need of the hour is better general education, and he fears that the generosity of Mr. Carnegie is in great measure misapplied. Good common schools are sorely needed, while literature is plentiful and within the reach of the very poorest.

Progress in Treatment of Disease.

DR. C. C. BROWNING, Los Angeles, following out the theme of Dr. Price, referred to the progress made in the treatment of disease, and especially to the work of the Section on State Medicine and Public Hygiene. A few years ago this section was thought scarcely worth attending; now it is considered one of the most important. In California this subject is a live one, as is also true of Pennsylvania, where the last legislature appropriated one million dollars to fight tuberculosis alone; showing the great interest manifested in that state in one particular disease. This dread scourge carries off from one-tenth to one-seventh of the entire population of the civilized world. He urged on those present the extreme importance of educating the laity in public hygiene; its principles should be made clear to the people, and the little children in the public schools should be carefully taught and enlightened, that they may go out as missionaries to every home.

Medical Organization and Some Fallacious Notions Concerning It.

DR. C. C. STEPHENSON, the retiring president, in his address paid a glowing tribute to the late Dr. N. S. Davis, the founder of the American Medical Association, and to the work of the Association, and to what its recent efforts have accomplished in the way of securing better medical colleges, higher necessary requirements for the admission of students and the elevation of medical standards generally; medical legislation; medical practice acts; publication of a medical directory; organization of a Council on Pharmacy and Chemistry; organization of a Committee on Medical Organization, and the great work accomplished by Dr. McCormack, its chairman; the inauguration of a postgraduate course for county societies, etc. The

future possibilities of organized medicine, he said, are beyond the comprehension of even the most hopeful optimist. He declared that medical organization was never intended as a selfish enterprise, but as the best means for the alleviation of pain and suffering wherever found. Advertising quacks and nostrum vendors he handled without gloves. Commercialism and selfishness he emphatically denounced. He recommended the conversion of the old State Capitol Building into the State Charity Hospital, with suitable pathologic and bacteriologic laboratories, and that it should have a postgraduate course for practitioners and nurses. He asked that definite steps be taken to prohibit the publication of indecent advertisements in the press and on billboards; for compulsory vaccination and for restricting the issuance of marriage licenses to those mentally and physically sound; and that vigorous action be taken in regard to the discouragement of newspaper news items going the rounds of the press exploiting various wonderful results, e. g., those attained by the treatment of hydrophobia by the so-called madstone. He recommended that the expenses of the state secretary be borne by the society while attending the meeting of the Association of Editors of State Journals. He also asked that every honorable means be employed to secure the passage of a law requiring a higher standard of medical education and a law defining "a high school course." Finally he recommended that the State Board of Medical Examiners be made the board of visitors to report annually to the general session as to the efficiency of the medical schools of the state, and that a gold medal annually be given to the two medical schools of Little Rock for meritorious graduates.

Some Problems of Childhood.

DR. H. P. ROUTH, Hackett, referred to the many dangers and difficulties of childhood due to the ignorance of mothers, midwives, and meddlesome neighbors; to the unwarrantable substitution of artificial for breast feeding, thereby increasing the infant mortality; to contagion in the public schools, and to nostrums. It is the duty of the physician, he said, to safeguard childhood in every way possible, and the laity should be taught the lurking danger in baby elixirs, baby bowel remedies, cough syrups, etc., so attractively displayed in the druggists' windows and shelves and advertised in the press both secular and religious, as well as in certain medical journals.

The Race Suicide Problem.

DR. C. P. MERIWETHER, Little Rock, discussed the so-called race-suicide problem. He believes that the trouble in most cases is due to gonorrhea in the male, that education should begin at an early age in the home, and that sexual purity should be taught to the youth of the country by parents. In this way only may we expect the direful results to be averted.

The Diagnosis of Pelvic Diseases and Treatment of Inflammatory and Suppurative Conditions.

DR. JOSEPH PRICE, Philadelphia, said that a large percentage of these troubles are due to the irregular lives of the husbands before marriage. He urged that parents should watch over their daughters more circumspectly, and safeguard them in every way against these horrors. In the simple bucolic days these troubles were rare; but with the coming of increased facilities for transportation and the advent of railroads, vice made its inroads. When men who have led irregular lives marry, they contaminate their wives; few, if any, of whom bear children; and many come on the operating table. Dr. Price deplored this state of affairs and advocated strongly the single standard of morals and the free circulation of healthy and helpful literature among those of tender age. Americans, he declared, are in the front rank as regards gynecology, and are to be congratulated on their discoveries and improved methods, which are well understood throughout the world.

Prevention of Disease.

The chairman of the Section of State Medicine and Public Hygiene, in his address, declared that prevention of disease is the highest duty of the physician, sanitary science having done more for mankind than any other department of medical achievement. More is being done now than ever before and he predicted magnificent results in the future. He referred to the ravages of pulmonary tuberculosis and pneumonia, deplored the lack of a state sanitarium, and urged that vigorous effort be made to secure such an institution.

State Examining Boards.

DR. M. FINK, Helena, described the good work accomplished in this and other states by the state examining boards, and described how efforts to obtain a better law were hampered at the last session of the state legislature. The measure was thwarted in large measure by the efforts of the "patent medicine" men.

Public Health and Vital Statistics.

DR. G. M. D. CANTRELL, Little Rock, called attention to the great value of public sanitation in fighting disease. He emphasized the need of more effective sanitary laws, and declared it the duty of the medical profession of the state to become leaders in the effort to secure an efficient board of health and to educate the laity in regard to lending a hand to secure better sanitary conditions. The people must be convinced of the important part sanitation plays in everyday life and they will not be slow to provide the necessary means, laws, and officers to carry on the work. He also alluded to the extensive work of Dr. Irion, secretary of the State Board of Health of Louisiana, in enlightening the laity of that state.

Hygiene in Tuberculosis.

DR. C. H. HOFFMAN, Little Rock, emphasized the importance of early recognition and prompt, energetic and courageous treatment. The first duty of the State is to educate her citizens, especially the laboring classes of both races in the general principles of sanitation. The milk supply should be carefully safeguarded and the health of those employed around dairies investigated, and persons found to be infected should be assigned to other duties. He warmly supported his colleagues in their effort to secure a state hospital.

Skin Lesions.

DR. NETTIE KLEIN, Texarkana, regards skin lesions as danger signals of great pathologic value whose importance is too often ignored. Boils, acne, dermal neuropathies, eczema and tuberculosis of the skin, are not local troubles, but the development of some underlying pathologic condition, which should be thoroughly investigated in diagnosis.

Case of Abdominal Pregnancy.

DR. A. G. DICKSON, Paragould, reported a case of abdominal pregnancy in a patient aged 26, health good, first pregnancy. In the tenth month of gestation she developed chills and fever. The amniotic sac was found partly adherent to parietal peritoneum on left side, and to the intestines. The fetus weighed eight pounds, and lay in the right oblique diameter. Down in the left iliac was a completely developed placenta attached to the parietal peritoneum and sigmoid; from it was reflected the decidua that formed the gestation sac. The uterus, ovaries and tubes were normal throughout; there was no attachment between these organs and the placenta. This, good authorities deem impossible. Fetus had been dead two or three months, and was in a good state of preservation; placental adhesions were easily broken and the placenta was removed, with but slight hemorrhage; no infection followed; recovery was rapid. This disproves the idea that in order to live and thrive after escape into the abdominal cavity, the fecundated ovum must retain its placental attachment to the tube.

The Management of Abnormal Labor.

DR. C. K. CARUTHERS advocated chloroform for rigid os, and quinin and strychnin for uterine inertia. There is minimum danger to mother and child by early use of forceps when indicated. The perineum is protected by retracting the mucous membrane at the anterior fourchette over the occiput, at same

time pushing up on the fetal head, thus increasing the diameter of outlet.

Surgical Treatment of Retroflexions.

DR. WILLIAM H. MILLER, Little Rock, has found the internal Alexander technic most useful in the majority of cases, and less likely to produce unpleasant sequelæ; he has employed it in over fifty cases without a single failure. He has had unsatisfactory results with the Wylie operation, especially in cases of subsequent pregnancy.

Puerperal Eclampsia.

DR. C. M. LUTTERLOH has experienced but few cases. One in 330 labor cases is said to be the ordinary proportion. He believes albuminuria the most probable cause. He recommended that the patient be encouraged by suggestion, and that no allusion whatever be permitted by any one to the previous eclamptic condition. This will usually abort the unfortunate sequelæ of insanity, which frequently occur, and mar a good recovery.

Puerperal Infections.

DR. G. A. WARREN, Black Rock, condemned too frequent or unnecessary vaginal palpations, and the use of douches. If douches are used they should be as hot as safety will permit; if the curette, it should be blunt, and sound tissues should be carefully guarded.

Diseased Conditions of Female Reproductive Organs.

DR. C. S. PETTUS, Eldorado, condemned hasty surgery and failure to observe strict asepsis; he paid a tribute to womanhood and attributed a large share of sterility to gonorrhea in the male.

Chairman's Address—Section on Surgery.

DR. A. G. DICKSON, Paragould, complimented the surgeons of Arkansas on their steady progress. He referred to the Cargile membrane and the "Runyan stitch" adopted and commended by the Mayos. Both were Arkansas products. He closed with a word of encouragement to still further efforts and discoveries.

Intestinal Obstruction.

DR. W. A. SNODGRASS, Little Rock, reported five cases of intestinal obstruction of which two were fatal; three patients recovered. He strongly recommended early surgical interference and condemned purgatives which tend to increase the tension in already weakened and inflamed bowel.

Drainage.

DR. C. R. SHINAULT, Little Rock, referred to drainage as Nature's method, and strongly urged its use as a general rule; especially, when in doubt, we should take no chances, but drain.

Bone Tuberculosis.

DR. J. P. RUNYAN, Little Rock, said that in acute miliary tuberculosis the red marrow of the spongy, as well as the diaphyses of the infantile bones, is involved. The tela ossea proper does not undergo any change. Caries is not a special disease, although frequently the result of tuberculous disease of the bone. It may originate from hematogenous metastasis, or may arise from extension to the bones by continuity from adjoining tuberculous tissue. If due to direct extension from a neighboring focus, it involves the periosteum first. It spreads more rapidly in spongy than in denser tissues. In tuberculosis we find no new formation of bone in the diseased periosteum. In the other acute inflammations the bone forming function of the periosteum usually remains intact.

Appendicostomy in Treatment of Amebic Dysentery.

DR. OSCAR GRAY, Little Rock, reported the case of a young woman, aged 23; pulse 110 to 120; temperature 100. He made an abdominal incision; brought the appendix out and stitched it to the surface of the skin; inserted a catheter in appendix well into the bowel. First irrigation was one quart of solution of quinin sulphate, 1:500 rather cold. Subsequent irrigation was carried on with plain ice water. He closed the fistula at the end of the eighth week, but believed it should have remained open six months. Diet was buttermilk, orange juice, a little broth and albumin water.

Rupture of Heart.

DR. M. C. HUGHEY, Knobel, reported a case of rupture of the heart, probably the result of a fisticuff encounter. Patient appeared well after the fight, but experienced a hard rigor the night following. On the third day he had severe headache; that night convulsions set in and death occurred the next day. Postmortem revealed pia mater swollen, inflamed, congested; no other cranial lesion. The pericardium was ruptured and there was a rupture in the right ventricle large enough to admit the little finger of an adult. Query: When did the rupture occur?

Medical Advertising.

DR. HENRY THIBAULT, Scotts, criticized severely irregular methods of securing practice by exploiting the laity, circulars, newspaper advertising, "interviews," or otherwise.

Cardiac Tonics.

DR. THOMAS HUNT STUCKEY, Louisville, Ky., contributed a paper on the use of cardiac tonics, with special reference to digitalis. In his opinion digitalis stands first; strophanthus, second; spartein, third; caffein, fourth; strychnin, fifth, and adrenalin, sixth.

Intussusception.

DR. ST. CLOUD COOPER, Fort Smith, said that boys are more frequently affected than girls. He recommended a warm enema of sweet oil; inversion of patient, and gentle massage of bowel; after two hours' failure to get relief, laparotomy.

Obstipation.

DR. M. C. HOWTON, Osceola, believes that this trouble is, in a large measure, due to irregular stools and procrastination. It is unknown to American Indians, and is rare among the French.

Hydrophobia.

DR. J. S. RINEHART, Camden, reported fatal cases and deplored the absence of a Pasteur institute in Arkansas. Early and thorough disinfection of wound is of paramount importance.

Sciatica.

DR. G. E. CANNON, Magnolia, considers sciatica usually traceable to pressure, heavy lifting, sudden straining, hard seat in office, continued jolting over rough road, etc. Treatment: Rest and electricity.

Examination of Eyes and Ears of School Children.

DR. R. H. T. MANN, Texarkana, urged that every pupil should be examined on entrance: this would aid the teacher in selecting seats; those children with defective vision should be placed near the blackboard: those with poor hearing near the teacher. Inflamed eyes and headaches should be watched carefully for if unchecked they will produce baneful effects.

Pancreatitis.

DR. F. B. YOUNG, Springdale, said that pancreatitis is usually concomitant with gall-bladder lesions. It may arise from cholecystitis or complicate mumps; convalescence is tedious. Treatment: calomel, salines, sodium phosphate, and hot water enemata, with tonics in convalescence. Uranalysis did not show sugar in any of twelve cases of pancreatitis combined with mumps.

The following papers also were read: "A State Sanitarium for Tuberculosis," by Dr. C. E. Witt, Little Rock; "A Case of Calcified Fibroma of Ovaries in a Negress," by A. Watkins, Little Rock; "A Case of Abdominal Ectopic Pregnancy," by Dr. R. C. Dorr, Batesville; "Case of Hematocolpos and Hematometra," by Dr. L. E. Willis, Newport; "Perineal Lacerations," by Dr. W. A. Snodgrass, Little Rock; "Three Cases of Eclampsia," by Dr. H. C. Dunavant, Osceola; "An Obstetrical Case," by Dr. A. L. Whitcomb, Rogers; "A Hair Pin in the Uterus; A Case of Hodgkin's Disease," by Dr. C. J. Hughes, Walnut Ridge; "Several Cases of Sarcoma of Kidney," by

Dr. Carl E. Bentley, Little Rock; "Two Hundred Cases of Measles," by Dr. A. L. Carmichael, Little Rock; "Rheumatism," by Dr. M. G. Thompson, Hot Springs; "Sporadic Cases of Diphtheria," by Dr. C. C. Priee, Douglas; "Progressive Pneumonia," by Dr. J. M. Stephens, Clover Bend; "Prophylaxis and Treatment of Pneumonia," by Dr. J. W. Melton, Alum; "Treatment of Pneumonia," by Dr. H. H. Niehuss, Wesson; "Malarial Hematuria," by Dr. J. G. Waldrop, Augusta; "Pulmonary Tuberculosis," by Dr. D. C. Walt, Little Rock; "The Unreliability of Heart Murmurs," by Dr. N. S. Word, Camden; "Reminiscenses of the Civil War," by Dr. L. J. Wilson, Alma.

AMERICAN ASSOCIATION FOR CANCER RESEARCH.

Meeting held in Buffalo, April 15, 1908, at the New York State Cancer Laboratory.

(*Continued from page 159.*)

A Study of the Proteids of Tumors.

DR. S. P. BEEBE said that the methods of investigation which have been employed thus far in the study of tumor proteids have been faulty in many respects. The whole tumors have been compared to some normal organ and attempts have been made to draw conclusions regarding the relation which tumor proteids bear to those of normal organs. Pure proteids from the two sources have not been compared. Two methods are available for the latter object; viz., the pure proteid may be hydrolyzed by a mineral acid and the hydrolytic products separated quantitatively by the Fish esterification method, or the biological method, as exemplified in the precipitin test, may be tried. The first method is practically ruled out because of the large amount of pure proteid required to get satisfactory results. The second method has been tried in a number of instances during the last two years and the results show that normal organs may be differentiated, and also that tumors may be differentiated from one another as well as from normal organs. The work is still in progress but the indications are that tumors contain characteristic proteids.

Further Observations on Immunity in Lymphosarcoma in Dogs.

DR. BEEBE said that the transfusion of blood from an immune animal to an animal with growing tumors will cause the regression of the latter, with subsequent immunity to further implantations of the tumor. The question at once arises: To what extent is the subsequent immunity caused by the transfusion of immune blood, and to what extent may it be due to a change taking place during the regression of the tumors? To get further light on this point, a series of five animals was planted with the tumor and the latter was allowed to develop only to a sufficient extent to demonstrate that the animal was susceptible. At this point they were completely removed and the dog at the same time was given a large transfusion of blood from an immune animal. From a week to ten days later the susceptible animals were again planted with the tumor, with the result that they all gave positive growths. It would seem, therefore, that the regression of the tumor as a result of the action of the immune blood is an essential factor in the development of the subsequent immunity in susceptible animals.

DISCUSSION.

DR. H. R. GAYLORD said that these facts conform with the views held by Clowes and himself, that recovery from a tumor is essential to the establishment of immunity. They also tend to show, in his opinion, that transfusion with immune blood in animals acts by inaugurating a process similar to spontaneous regression in tumors. This is the essential difference between the interpretation placed on this phenomenon by Ehrlich and the point of view held by Clowes and himself.

Recurrent Liposarcoma of the Kidney.

DR. GUTHRIE MCCONNELL reported the case of a man, 44 years old, white, who was admitted to St. Luke's Hospital, St. Louis, Mo., in Dr. H. G. Mudd's service.

About October, 1899, the patient noticed a lump about the size of a hen's egg in the right hypochondrium. It increased slowly in size during the year, becoming as large as a baseball by January, 1900. Eighteen months later, June, 1901, he came to the hospital for operation. At this time there was found a large freely movable cystic tumor filling the abdominal cavity. At the operation the colon was found lying on the left lower portion of the tumor in such a way as to indicate a retroperitoneal origin. The growth was found to surround and closely to incorporate the right kidney. It was yellow in color and resembled a lipoma; was cystic in places and weighed 65 pounds. Microscopically it was a fibro-lipoma with some mucoid degeneration.

The patient was not seen again till January, 1908, at which time a large growth was removed from the right hypochondrium. It weighed 27 pounds, was yellow and gray in color, and was lobulated. Its consistency varied in different places, but was nowhere cystic.

Portions of tissue were taken from three different areas. Section A consists of fat cells surrounded by quite wide bands of a very cellular connective tissue. At the periphery this tissue is firmly compressed and forms a distinct capsule. A small amount of elastic tissue is present in the capsule and around the capillaries.

Section C closely resembles the above, except that it is somewhat more vascular.

Section B consists almost entirely of solid tissue with very small collections of fat here and there. The groundwork of the specimen is composed of a slightly granular translucent material, evidently connective tissue, either edematous or myxomatous in character. The nuclei vary extremely, they differ so widely that it does not seem that they can all be of the same origin. They occasionally occur in groups, giving an impression of being giant cells, but in only a few instances are true forms of them to be seen.

In none of the sections are involuntary muscle fibers or mitotic figures seen.

In the specimens taken from the three different portions of the growth there is found in all instances a peculiar structure. It is composed of a ring of cells consisting of a large amount of protoplasm in which is a large, round, or slightly oval well staining nucleus. The center of the ring is clear, as a rule, and the lining of the lumen consists of the protoplasm of the above cells.

In Section B this structure appears to have been cut obliquely, and the character of the cells is more distinct. The cell is quite large, with a well marked cell wall, within which is a slightly granular protoplasm containing a bluntly oval, quite deep staining nucleus. The lumen is triangular in shape and contains on one side a slightly granular substance, but no blood cels. The appearance presented is that of a tubule lined probably by endothelium, considering the growth to be mesothelial in origin.

The question of origin brings up the subject of hypernephromata. Many of the so-called lipomata of the kidney have proved on microscopic examination to be adrenal rests. There are however many hypernephromata that contain large amounts of fat.

Keenan and Archbold report a case of fatty tumor and come to the conclusion that it is a lipoma resulting from the degeneration and metaplasia of the cells of an adrenal rest. As this tissue is a mesoblastic derivative such a process would seem possible.

In the case here reported the growth recurred and had certain of the peculiarities found in sarcomata.

By starting with the hypothesis that fatty changes are not uncommon in the normal adrenal we establish our premise. The presence of aberrant adrenal tissue, particularly in the neighborhood of the kidney, is a widely accepted fact. The first condition, then, to be expected is a hypernephroma, accompanied by fatty changes of varying degree. Then, as in the case of Keenan and Archbold, the fatty tissue greatly predominates, but here and there are found cellular areas believed to be derived from adrenal tissue. In the case now reported there is only a very slight remnant of early structures, the fatty tissue being overwhelmingly predominant.

Granting the possibility of the degeneration and metaplasia of the adrenal elements into fatty tissue, it would seem allowable to hold that this tumor was in reality a hypernephroma that had taken on a fatty change with a limited malignant tendency.

DR. F. B. MALLORY gave a demonstration of lantern slides used in teaching the histopathology of tumors at Harvard Medical School.

So-Called Rhythms of Growth-Energy.

DR. GARY N. CALKINS said that in 1906 Bashford Murray and Bowen published a paper on the experimental analysis of growth in cancer, in which so-called rhythms of growth energy were discussed. To represent these rhythms graphically the authors used for ordinates the percentages of takes upon transplantation and as abscissas the length of time in days taken by the tumors to develop to the point when ready for transplantation. In curves based upon such data there were evidences of more or less definite alternations of greater and less virulence. Similar results were described by Hertwig and Poll in a recent publication on the biology of mouse tumors.

Rhythms in activity of growth are characteristic of all rapidly growing tissues or of free living cells, and might well be looked for in rapidly multiplying cells, such as mouse cancer presents. But the rhythms should occur in the individual tumors and not in successive transplantations, for the factor of infectiveness of the cancer cells as confusing the real growth energy must be taken into account. The so-called rhythms of growth energy, therefore, should be further analyzed and the factors of infectivity and growth energy examined independently. This has been done for two of the tumors of the Buffalo laboratory, one the so-called Brooklyn tumor, the other the Springfield tumor. For comparison, two curves were made for each tumor, one representing the percentage of takes in successive transplantations, the other the rate of growth as measured by the length of time in days from the inoculation to death from cancer of the inoculated mice, in successive transplantations. Here is the real measure of growth energy unaffected by the factor of infectivity. The curves show no relation between the two factors after the tumor is well established, and show, further, that the rhythms described by Bashford Murray and Bowen are rhythms in infectivity and not in growth energy of the cancer cells.

DISCUSSION.

DR. LEO LOEB said that the differences between the curves representing the energy of growth and the inoculability of tumors were very interesting. He had had occasion in several publications to point out such differences and to draw attention to the fact that these differences are not favorable to Borrell's hypothesis in regard to cell growth. It was especially important that Dr. Calkins had been able to demonstrate that Bashford's rhythmical curves apply merely to the inoculability of tumors and not to the rate of growth.

In regard to Dr. Calkins' remarks about the possible duration of life of somatic cells, he would state that he had started experiments on this point about two years ago. The experiments had had to be temporarily discontinued but he hoped soon to be able to resume these investigations.

Laboratory Experiments on the Causation of Cancer.

DR. H. R. GAYLORD reported: 1. Transplantation results in 23 spontaneous tumors, all cancers of the breast in mice obtained from the same breeding establishment. Sixteen did not produce tumors in the first generation; 4 produced tumors in the first generation but did not transplant; 1 transplanted to the third generation; 2 of the 23 are still running.

2. Transplantation of established tumors into mice with spontaneous tumors. Bashford and Borrel have reported experiments of this sort, in which animals already suffering with spontaneous tumors were inoculated with spontaneuos tumors or established transplanted tumors. Six mice with spontaneous tumors inoculated with established transplantable tumors gave six positive results. Four mice with spontaneous tumors inoculated with spontaneous tumors from other mice gave in each case a negative result. These results tend to confirm the conclusion of Bashford that mice suffering from spontaneous tumors are not in a condition of unusual susceptibility.

3. Experiments to control the observations of Schöne on the production of immunity by the injection of embryonic tissue into mice. Attempts were made to immunize 73 mice by repeated injections of mouse embryos and liver tissue, following carefully the method of Schöne. As control for these experiments 35 direct inoculations were made. Animals which received injections of embryonic tissue gave 51 per cent. of successful inoculations, controls 20.2 per cent.

4. Experiments with spindle celled sarcoma of the rat (primary sarcoma of the thyroid), designed to repeat the observations of Flexner and Jobling on the sensitization of animals before inoculation with tumors. Tumor used was in the fifteenth generation of transplantation, and showed an average infectivity of 15 to 30 per cent. The experiments were divided under three heads: Tumor material heated at 50 C. for one hour; at 56 C. for one hour, and 59 C. for one hour. Results of injecting rats with tumor material heated to 50 C. were as follows:

Five sensitized rats inoculated 3 days after sensitizing gave 4 tumors, 5 control rats 3 tumors.
Five sensitized rats inoculated 10 days after sensitizing gave 2 tumors, 5 control rats 3 tumors.
Five sensitized rats inoculated 16 days after sensitizing gave 1 tumors, 5 control rats 4 tumors.
Five sensitized rats inoculated 32 days after sensitizing gave 3 tumors, 5 control rats 3 tumors.
Five sensitized rats inoculated 38 days after sensitizing gave 1 tumor, 5 control rats 4 tumors.
Results of injecting rats with tumor material heated to 56 C. were as follows:
Five sensitized rats inoculated 6 days after sensitizing gave 1 tumor, 5 control rats 1 tumor.
Five sensitized rats inoculated 13 days after sensitizing gave 2 tumors, 5 control rats 3 tumors.
Five sensitized rats inoculated 19 days after sensitizing all died, 5 control rats gave 2 tumors.
Tumor material heated to 59 C. gave following results:
Ten sensitized rats inoculated 11 days after sensitizing gave 3 tumors, 10 controls no tumors.
Five sensitized rats inoculated 21 days after sensitizing gave 2 tumors, 5 controls all died before tumor development possible.
Ten sensitized rats inoculated 38 days after sensitizing gave 1 tumors, 5 controls no tumors.
Five sensitized rats inoculated 53 days after sensitizing gave 2 tumors, 5 controls no tumors.
Five sensitized rats inoculated 63 days after sensitizing gave 1 small tumor, 5 controls 1 small tumor.
Seven sensitized rats inoculated 84 days after sensitizing gave no tumors, 5 controls 2 tumors.

From these results the reporter finds that with the Buffalo spindle cell sarcoma of the rat it has not been possible to demonstrate any sensitizing effect or any definite influence, as the result of injecting heated tumor material before inoculation.

5. Further report on a breeding establishment in Massachusetts where cancer of the breast in mice is endemic. This is the same establishment which was reported in Toronto, in 1906, and in November last at the meeting of the Association for Cancer Research. From June 1, 1906, to Nov. 15, 1907, this breeder had raised, according to her own approximation, 7,500 mice. During the same period she sold to this laboratory 53 tumor mice, to other investigators 16; and 6 had died, making a total of 75 tumor mice. Since Nov. 15, 1907, the laboratory has received from her 24 tumor mice, and based on the same approximation she has raised since that time 1,700 mice. On the basis of several thousand animals examined, Bashford has estimated the incidence of cancer in mice at 1 in 3,500. The occurrence of cancer in this establishment is more than 1 in 100, at least 35 times more frequent than the average, according to Bashford.

6. Experiments directed to the control of Moore and Walker's experiments on the resistance of mouse tumors to freezing with liquid air at a temperature of —195, for a period of from 20 minutes to half an hour. To control this observation we used an active transplantable mouse tumor, dividing it into equal portions, freezing one portion 40, and the other 80, minutes. Tumors developed after each of these periods of freezing as follows: Nine mice inoculated with material frozen 40 minutes gave two tumors; 14 mice inoculated with material frozen 80 minutes gave two tumors. Five controls inoculated directly gave five tumors.

From each series six mice were killed on, respectively, the third, fifth, seventh, tenth, thirteenth and eighteenth days. All of these failed to show any evidence of proliferation in the in-

jected cancer epithelium with the exception of one, a mouse inoculated with material frozen 40 minutes and removed on the eighteenth day. Four controls, removed, respectively, on the fifth, seventh, thirteenth and eighteenth days, showed rapidly proliferating and infiltrating tumors. Of the tumors which were allowed to develop to maturity, one, material frozen 40 minutes, made its first appearance 17 days after inoculation. Tumor grew for this period of time, retrograded, ultimately began to grow again, and at date, three months after inoculation, it is growing slowly and is about the size of a hazlenut. In the series where the material was frozen 80 minutes three tumors developed. They appeared, respectively, in 21, 21 and 39 days after inoculation. Two retrograded, and one, that appearing latest, grew with great rapidity, the animal dying from the tumor in 54 days after inoculation. The two controls which were allowed to develop, developed rapidly growing tumors of great size, which killed in 23 days after inoculation. It will thus be seen that freezing with liquid air for so long a period as 80 minutes does not prevent the development of tumors. The number of successful inoculations is, however, markedly reduced, the tumors appear later, tend to retrograde, and show in every particular lessened vitality. As control, were used young mouse embryos removed aseptically, chopped fine, frozen for 20, 40 and 80 minutes with liquid air, injected subcutaneously through a coarse needle with syringe, with the result that evidence of growth could be found in the controls but in none of the implantations made with frozen material could undoubted evidence of growth be determined. For further control was used the spleen from animals infected with *Trypanosoma gambiense*. This organism had reached a state of virulence by which it killed inoculated animals in three days. Material frozen for 20 minutes with liquid air produced the disease in inoculated animals, killing them in nine days. The organisms were found in the spleen, other organs and in the circulation. Material containing the organisms frozen for 40 minutes and for 80 minutes gave negative results. The tumors which developed from material frozen with liquid air for the periods mentioned, present the histological characteristics of the transplanted tumor from which the material was taken. The reporter holds that these experiments demonstrate the great resisting power of cancer cells to low temperatures and can not agree with Moore and Walker that these experiments demonstrate the presence of a virus, although he believes in the existence of such a virus.

Observation on the Inheritance of the Susceptibility to an Inoculable Tumor.

DR. E. E. TYZZER reported from the laboratory of the Caroline Brewer Croft Fund Cancer Commission of Harvard University that an adenocarcinoma which occurred spontaneously in a Japanese waltzing mouse was successfully inoculated into other mice of the same variety. This tumor has been propagated for nearly a year and a half by transplantation from mouse to mouse. It is characterized by its slow rate of growth and the ease with which it is transplanted in waltzing mice. It grows in practically 100 per cent. of the waltzing mice inoculated, but has not grown in a single instance after inoculation into common tame mice.

Since waltzing mice may be bred with common mice, it seemed desirable to determine how the susceptibility to this tumor is inherited. The first experiment has afforded results of such a nature as to make it important to investigate further along this line.

Hybrids were obtained by mating Japanese females with common males. These hybrids resemble common mice, and do not waltz. For the first experiment the transplantable tumor in question was inoculated into ten Japanese mice, ten hybrids of the sort just described, and ten common mice. In the ten Japanese mice the tumor grew slowly in the usual manner, in the ten hybrids it not only grew in all, but its rate of growth was much more rapid, while in the ten common mice it failed to grow and became wholly absorbed. Thus the hybrids obtained by mating susceptible Japanese females with nonsusceptible common males are fully as susceptible as the pure Japanese mice. The remarkable feature of these results is that the growth of the tumor in the hybrids outstripped its growth in the Japanese mice in every case. There is a possibility, however, that this difference is to be explained on the basis of a difference in the amount of nutrition afforded the tumor by the two sorts of mice.

The next point to be determined is whether hybrids derived from Japanese males and common females are susceptible. The subject may be also attacked from another side, by employing the inoculable tumors of the common mouse in a similar series of experiments. Several such series of inoculations have already been made, so that it is now only a matter of time before it will be determined whether the susceptibility to a given inoculable tumor is inherited according to Mendelian principles or in some other manner.

Relation of Simple and Mixed Tumors of the Testicle.

DR. JAMES EWING said that the common malignant tumors of the testicle present in very clear light some of the important principles of the theory of cell autonomy. There are several rather distinct histological varieties of these tumors.

1. A rather slowly growing circumscribed solid tumor of teratomatous character, exhibiting derivatives of one or more embryonal layers, such as connective tissue, muscle tissue, cartilage, stratified squamous epithelium, hair, enamel organs, cystic spaces lined by cuboidal or ciliated epithelium, and occasionally nervous elements.

2. Malignant tumors composed of large, round or polyhedral cells, diffusely arranged and variously designated as carcinoma, alveolar sarcoma, or endothelioma.

3. Malignant tumors composed of complex anastomosing systems of large polyhedral cells inclosing blood sinuses or small cavities or alveoli, with cellular stroma resembling sarcoma. The formation of syncytial masses with peculiar vacuolation occurs in some of these tumors and they produce polypoid hydatidiform metastases in blood vessels. These facts led to the suggestion, first by Schlagenhaufer, that this class of growths is the analogue of chorioma in the female.

Numerous plans for classification of these tumors have been suggested, the latest being that of Debernardi (Ziegler's Beiträge, 1908, xliii, 89), who believes that the complex tumors form two distinct groups: (a) True teratomata, containing tissues and organs which require involvement of all three germ layers in their origin; and (b) less complex teratomata, or mesodermal mixed tumors, whose structure seems to require the involvement of mesoderm only. Yet Wilms was inclined to suppose that all three germ layers were involved in both these groups.

Choriomatous characters have been observed in portions of the complex tumors, so that their teratomatous nature is evident.

Coming to the simpler carcinomata, sarcomata, and endotheliomata, their relation to the teratoma has not been determined, and considering their relatively simple structure, it would be natural to suppose that they originate from simple groups of cells, or even from the epithelium of the tubules. There is, however, an impression based on the general history and embryonal character of the cells of these simple tumors, that they are in some way connected with the teratomata, but this impression has been in need of the support of definite observations. Ribbert refers, however, to cases of testicular tumors in which teratomatous and carcinomatous structures were combined, and he expresses the opinion that the simple malignant carcinoma or sarcoma of the testicle is usually a one-sided development of a teratoma. It is in support of this view that the following case is reported:

In the specimen, for which the author is indebted to Dr. Samuel Alexander, appearances were found which indicate that the usual forms of carcinoma of the testicle, as well as the so-called chorioma, are merely rapidly growing tumors of highly complex origin, in which one or another element gains ascendancy and suppresses the development of other elements which, under other circumstances, may go on to produce the complex structures of the true teratoma. In this case the tumor was secured very early, the growth, consisting of a rounded, circumscribed mass, 1 cm. in diameter, with a single outlying nodule ⅓ cm. in diameter. These lay in the body of the testicle. In the larger mass three distinct structures ap-

peared. (1) A diffuse growth of large cells of the type seen in the so-called pure carcinoma or endothelioma of the testis; (2) characteristic chorioma of Schlagenhaufer; (3) cystic cavities lined by columnar epithelium, such as are seen in the complex teratoma. The outlying nodule was composed exclusively of the carcinomatous structure. There was every indication that if this small complex tumor had been allowed to grow it would have produced a tumor composed of an increasing proportion of the carcinomatous element, and that the other elements, especially the epithelial lined cysts, would have been suppressed. At such a stage the tumor would have to be classed as a simple carcinoma or alveolar sarcoma; or, if the main growth were confined to the large epithelial masses which sometimes take on syncytial characters, the result would be a large cell alveolar carcinoma, which is not an uncommon type of tumor in the testis.

If this conclusion is correct, as the author believes it to be, then one must suppose that this entire group of testicular tumors, from complex teratoma to diffuse large cell carcinoma or sarcoma, has essentially one origin, viz., a misplaced cell group or tissue mass resulting from one definite and frequently recurring accident in the course of development of the testicle. This hypothesis places no limitations whatever on the variations in the period at which the embryological accident occurs, or in the composition of the misplaced tissue, or in its capacity for subsequent growth, but merely emphasizes the common genesis of a large group of tumors of very diverse histological structure. It may also slightly strengthen the application of Cohnheim's theory in a single field.

There are other tumors of the testicle besides the above series, but they are much less common. One of these arises from the interstitial cells, but this growth has nothing in common with the teratoid group. It is possible that tumors may arise from the adult epithelium of the tubules, but the author has never seen, except in the dog, any which suggested this origin.

In the case here reported the interstitial cells showed a remarkable degree of hyperplasia, appearing between many tubules as sheets of tissue, 10 to 30 cells in breadth. Many of these cells were of unusual size and contained an excessive admixture of granules, staining poorly with eosin, indicating a functional hyperplasia. These appearances, together with a well developed structure resembling chorioma, might suggest that here was a parallel between chorioma of the uterus with hyperplasia of the lutein cells and chorioma of the testicle with hyperplasia of the interstitial cells. In a comparison of this case with other teratoid tumors of the testicle and with normal testicles the author was unable to obtain any definite support in favor of this hypothesis for he found that the development of interstitial cells varies greatly in different animals, and in different portions of the same testicle in man and dog.

It is only possible to state, therefore, that this particular teratoma of the testicle with pronounced choriomatous characters was associated with marked hyperplasia of the interstitial cells. In one other case of large cell alveolar carcinoma of the testis with many vacuolated syncytial masses he has found the same hyperplasia of the interstitial cells.

Medicolegal

Landlord not Liable for Requiring Person with Erysipelas Staying with Janitor to Leave.

The Supreme Court of Michigan says, in the case of Tucker vs. Burt, that while the plaintiff was caring for her young son, who was taken ill in rooms occupied by her son-in-law as janitor of a building, she was taken ill with erysipelas. It was not regarded by the physician as a very serious case. But he told the tenants in the building that the disease was infectious, and warned them to be careful. Finally, the defendant, the owner of the building, having learned, on a Sunday, of the plaintiff's illness and the infectious character of it, notified the janitor that he must take the plaintiff out of the flat. The janitor said he would try and see what he could do about having her removed before Monday afternoon. On the following forenoon the defendant called the janitor by telephone, and informed him that he must get the plaintiff out by noon, or he would bring an officer and put them all out. The janitor communicated this message to the plaintiff. The plaintiff then left the place, and afterwards brought this action to recover alleged damages. She introduced evidence tending to show that she was worse after leaving the defendant's premises. When she rested her case the trial judge directed a verdict for the defendant, on the ground (1) that the defendant had violated no duty which he owed to the plaintiff; and (2) that there was no evidence that her physical condition after she left was traceable to the alleged wrongdoing on the part of the defendant.

In affirming the judgment of the lower court, the Supreme Court says that the question here involved was one of legal, not of moral obligation. The law imposes no duty on the individual citizen to care for the sick or the unfortunate who are poor. The public in this country assume that obligation, and each citizen has performed all that the law requires of him when he has paid his share of the expense imposed on him by taxation for that purpose.

The Priest and Levite violated no rule of law when they passed by on the other side of the wounded man. The Good Samaritan was not acting in obedience to a legal duty when he took compassion on him, took care of him, and removed him to the inn.

What legal duty, if any, did the defendant owe the plaintiff? Unless the law imposed the duty on the defendant to shelter her and her son in his house, it was clear that he could not be held liable. The janitor was the defendant's employé, not his tenant. He possessed none of the rights of a tenant. He had no right to bring into his employer's house to live with him any one, whether well or ill, without his employer's assent. The defendant had not invited the plaintiff to his house, neither had he authorized his employé to do so. The disease was infectious and dangerous to the tenants in the house, especially, perhaps, to one woman, who shortly before had given birth to a child. The physician had notified the tenants of the danger. The defendant was under no obligation to keep the plaintiff in his house if she could be removed, without danger of serious injury. He might lawfully request those who were responsible for her being there to cause her removal. He might not, neither did he, turn her into the street. He first requested his employé to cause her removal. When that employé failed he insisted and threatened to take prompt legal steps with an officer to accomplish it.

The plaintiff was not confined to her bed. There was testimony to show that the defendant knew that the plaintiff had a house of her own, but none to show that he knew where it was located. There was no evidence to show that she might not with comparative safety have been taken to her home in a cab or hack without danger. But, even if there was some danger incident to her going, there was also danger to the other occupants of the house incident on her remaining, and it was as much the legal duty of the defendant to look out for them as to look out for her.

Whatever aggravation of illness was caused in consequence of the plaintiff's removal, the physicians agreed that it was due more to excitement than to any other cause. There was no evidence from which the defendant might have inferred that such a result would follow, or that he had any intimation that the removal would excite the plaintiff, or that the excitement would aggravate her illness. The defendant was guilty of no legal wrong.

Injuries from Fright and Indirect Physical Impact.

The Court of Appeals of Maryland says, in Philadelphia, Baltimore & Washington Railroad Co. vs. Mitchell, a personal injury case brought by the latter party, that the weight of authority, both of text-books and decided cases, supports the view that there can be no recovery of damages for mere fright or mental suffering, caused by negligence, unconnected with physical impact or injury. This conclusion has generally been reached in reliance on the remoteness of the damage as well as the inexpediency of opening the door to claims

difficult of precise proof or disproof, and from their nature easy of simulation and liable to exaggeration. Many of the cases hold not only that there can be no recovery of damages for mere fright without impact or injury, but also that there can be none for actual physical injury resulting from such fright because such results are merely evidence of the degree of the fright or the extent of the damages resulting from that cause. From the last-mentioned proposition there has been a positive dissent in some recent cases which hold that there can be a recovery for physical injuries which are shown to be the natural and proximate result of mere fright caused by negligence, provided there be an unbroken connection between the negligent act and the injury without the agency of any intervening and independent cause. And whether the evidence establishes such an unbroken connection has been held to be generally a question for the jury.

But the court holds that there was in this case sufficient evidence to go to the jury of such physical impact and injury to the plaintiff contemporaneous with her fright as to take the case out of the classes referred to. She testified that while walking under an overhead bridge in the course of construction a hammer fell and struck her umbrella and she threw herself away from it and felt something tear in her side. By the time she got home she was suffering much pain and was compelled to lie down at once. She continued to suffer greatly, and on the next day, spit five or six large mouthfuls of blood. In a few days she was compelled to go to bed and remain there for about three weeks, and was ever afterwards in poor health and subject to frequently recurring spells of violent internal throbbing, which incapacitated her from performing her ordinary domestic duties. She also testified to having been in an early stage of pregnancy when injured, and to having suffered a miscarriage five days thereafter. There was also the testimony of four physicians who had attended or examined her professionally after her injury, tending to show that she had an aneurism of the abdominal aorta of a serious and incurable character, which was first recognized about a week after her injury and might have been caused by it.

The court holds that the striking of the umbrella in her hand by the falling hammer constituted a physical impact. While the physical impact or injury requisite for the purpose under discussion must be actual, it need not be such as to occasion an external wound or bruise. Indeed, it is not necessary that the person of the individual injured in such cases be struck. It is sufficient if the blow fall on the clothing worn by him, or even on the vehicle in which he is riding.

Current Medical Literature

AMERICAN.

Boston Medical and Surgical Journal.

July 2.

1 Theodore Tronchin, 1709-1781. F. C. Shattuck, Boston.
2 *Unusually Extensive Milk-Borne Outbreak of Typhoid. C. Harrington, Boston.
3 A Glomerular Lesion of Experimental Nephritis. H. A. Christian, Boston.
4 *Menace of the Swimming Tank. C. M. Cobb, Boston.
5 Alphamonobrom-Isolvalerylurea. A New Nerve Sedative and Somnifacient. (Concluded.) W. H. Porter, New York.

2. Milk-Borne Typhoid.—Harrington gives an account of an epidemic of typhoid that broke out March 31, 1908, in Jamaica Plain, which had been free from the disease for many months. In about six weeks no fewer than 410 cases were reported. The milk supply was early suspected and investigated. Of the 410 cases, in 348 primary and in 23 secondary cases the individuals were supplied by dealers F. and Q. In common with eight other milkmen, F. and Q. obtained their supply from the car of a contractor who derived his particular carload from eight towns, in none of which had typhoid occurred during the preceding three months. Investigation of this dairy showed no sickness there, and no sickness had arisen in other places supplied by it; the infection, therefore, did not arise there. The milkman F., however, who had been ailing since March 20, was found on April 2 to be suffering from typhoid, and the diagnosis was confirmed at autopsy on April 10. This adequately explains the typhoid in the train of F.'s milk supply, as he had been handling the milk himself up to April 2, when he took to his bed. It is suggested that the contamination of Q.'s supply may have resulted from the fact that F. and Q. returned their cans only washed but not sterilized to the car, and that an interchange of cans may repeatedly have taken place, for there was nothing to prevent Q. from subsequently receiving cans that had formerly been supplied to and handled by F.

4. Ethmoiditis and Otitis from the Swimming Tank.—Cobb warns against the danger of diving in swimming tanks, whereby cases of ethmoiditis and acute otitis media are not infrequently transmitted. He reports three cases in support of his view.

New York Medical Journal.

July 4.

6 *Dissecting Aneurism of the Aorta and Pulmonary Artery Following Rupture of the Arch of the Aorta. L. Brown, Saranac Lake, N. Y.
7 *Relation of Locomotor Ataxia and Paresis. J. R. Hunt, New York.
8 Glioma of the Brain. E. E. Mayer and F. Proescher, Pittsburg, Pa.
9 Light in the Treatment of Disease as Used at Boulder Lodge Sanatorium, Fort Dodge, Iowa. J. W. Kime, Fort Dodge, Iowa.
10 *Another Method of Regulating Pressure in the Bier Treatment. R. Grace, New York.
11 Broken Jaws. D. B. Freundlich, New York.
12 Treatment of Tuberculosis of the Upper Air Passages. J. W. Gleitsmann, New York.
13 Postdiphtheritic Multiple Neuritis with Vesical Involvement. C. D. Camp, Ann Arbor, Mich.

6. Dissecting Aneurism of the Aorta and Pulmonary Artery.—Brown reports a case of rupture of the arch of the aorta in which the usual course of the blood along the thoracic and abdominal aorta was interfered with, probably by certain scars on the transverse and descending portions of the aorta, so that the blood was forced toward the heart and along the pulmonary artery. Why it pursued this course instead of following the vessels of the neck is difficult to state.

7. Locomotor Ataxia and Paresis.—Hunt considers that there is no question concerning locomotor ataxia of greater importance than the relation which this affection bears to general paralysis of the insane. The importance is not merely clinical, but bears also on the nature and the etiology of both diseases. He confines his remarks to the combinations of the two diseases and the nature and significance of the so-called taboparesis, which he discusses as regards its clinical type and pathology. He further considers the relation of locomotor ataxia with other psychoses—paranoia, manic-depressive insanity, dementia præcox, and various mental states following drug addictions. He concludes that tabes dorsalis, dementia paralytica, and the combined form of the two affections, all have the common etiologic factor of an antecedent syphilis. The pathologic alterations in the cerebral cortex and the spinal cord are essentially the same in both the isolated and the combined forms. The clinical combinations of tabes and paresis are so varied and so numerous that a gradual transition may be traced from locomotor ataxia, on the one hand, to general paralysis of the insane on the other. In fact, it may be said that the more our knowledge of these parasyphilitic affections of the brain and spinal cord increases, the more significant appears their combination, and the stronger becomes the tendency to regard them all as essentially of the same nature and origin.

10. The Bier Treatment.—Grace describes, with an illustration, a method of using Bishop's hydrostatic sphygmomanometer for regulating pressure in the Bier treatment.

Medical Record, New York.

July 4.

14 *Miracles at Tomb of B. François de Paris. J. Collins, New York.
15 Recurrent and Abductor Paralysis of the Larynx. J. W. Gleitsmann, New York.
16 Dietetic Treatment in Dilatation of the Esophagus. M. Einhorn, New York.
17 Inflammation of the Circumflex Nerve. C. F. Disen, Minneapolis.
18 Cerebrospinal Meningitis Treated with Antimeningitis Serum. H. N. Moeller, New York.
19 *Collapse After Injection of Diphtheria Antitoxin. F. L. Taylor, New York.

14. **Miracles at Tomb of François de Paris.**—Collins relates a series of the miracles reported by de Mongeron as having occurred at the tomb of François de Paris in the early part of the eighteenth century, and shows how explicable they are in the light of modern knowledge. Mongeron's work, "*La Vérité des Miracles opérés à l'intercession de M. de Paris et Autres Appelans demontrée contre M. l'Archevêque de Sens*" (Paris, 1737-1741), "contains the most graphic accounts of major hysteria that have ever been depicted by the hand of a layman. . . . Taken altogether, they depict practically every form of physical incapacity and disorder which are now called the stigmata of the disease." Collins reproduces several of the more notable miracles, with the accompanying illustrations from Mongeron's work. He concludes with an account of the "convulsionists."

19. **Collapse After Injection of Diphtheria Antitoxin.**—Taylor reports a case in which the injection of 6,000 units of antitoxin was followed in ten minutes by tingling and numbness of extremities, cough, ghastly pallor, cyanosis, rapid and feeble pulse, absolute stoppage of breathing and unconsciousness, with rigidity, throat rattle and clammy sweat. Recovery took place under artificial respiration and hypodermic injections of atropin and strychnin, and was accompanied by diffuse erythema and giant urticaria. There was slight recurrence of some of the symptoms on the following three days.

Lancet-Clinic, Cincinnati.

June 27.

20 Race Suicide: Quantity or Quality—Some Economic Suggestions. E. E. McGriff, Portland, Ind.
21 Race Suicide: The Mothers' Side of the Question. E. Charles, Summitville, Ind.
22 Modern Conception of Tuberculosis and Its Treatment. B. F. Lyle, Cincinnati.
23 Limitations of the Laboratory in Medical Colleges. C. F. Hegner, Cincinnati.

Journal of Infectious Diseases, Boston.

June.

24 *Specificity of Opsonins in Normal Serum. L. Hektoen, Chicago.
25 *Interaction of Thermolabile and Thermostabile Opsonic Substances in Normal Serum. H. E. Eggers, Chicago.
26 Opsonic Index in Erysipelas. R. Tunnicliff, Chicago.
27 Phagocytability of Pneumococci in the Sputum in Pneumonia. E. A. Graham, Chicago.
28 *Treatment of Gonococcus Arthritis by Injections of Dead Gonococci and the Clinical Reaction Which Follows the Injections. E. E. Irons, Chicago.
29 Nature of Opsonic Immunity. A. W. Sellards, Baltimore.
30 *Amebas in the Intestine of Man. C. F. Craig, U. S. Army.

24. **Opsonic Specificity.**—Hektoen's results indicate that the opsonins for bacteria and for red corpuscles in human, rabbit and dog serum may be distinct substances, at least in part, and that normal serum may contain several more or less distinctly specific opsonins for alien red corpuscles. Absorption experiments with heated serum give results that point to the thermostatic opsonic elements in normal serums as the carriers of the specific affinities. Following the injection of antigen there is a specific fall in the index, even when determined with heated serums. The claim that normal serum contains specific opsonic substances is supported by the demonstration that soon after infection or inoculation there occurs a fall in the opsonic index, which is specific for the infecting or inoculated microbe. This specific depression of the index in acute infections must be regarded as the result of infection rather than as an antecedent condition favoring infection, as suggested by certain writers. The presence in normal serum of several more or less specific opsonic substances, and the specific depression of the opsonic index on the entrance into the body of the antigenic material, accord well with the conception that on immunization there is called into existence an increase in the quantity of certain chemical agents which are already preformed in the body.

25. **Opsonic Substances.**—Eggers verifies the observation of Dean and others, to the effect that diluted fresh normal serum may increase greatly the opsonic power of heated serum. In a large percentage (75), however, of the different sera examined, intractable thermostabile elements were found, at least with respect to pneumococcus.

28. **Gonococcal Injections in Gonococcus Arthritis.**—In chronic cases of gonococcus arthritis the mechanism of immunity fails to rid the body of gonococci which persist either in the original lesion or elsewhere, and cause now and again new points of localization. In such cases the injection of dead gonococci may cause a clinical reaction, constitutional as well as local, not unlike the tubercular reaction, and one which probably will prove of much diagnostic value. As a rule, this reaction is followed by a period of improvement. Irons points out that repeated injections of the same dose—100 to 500 million dead gonococci—are followed by less and less marked reaction, and this fact is a strong argument in favor of concluding that the injections hasten the development of immunity. In full accord with this conclusion is the further fact that in a number of cases injections of dead gonococci were of distinct therapeutic value. While Irons is conservative, and recommends that many further series of cases be studied before final opinion is drawn, the results present warrant the statement that, at least in certain cases of gonococcus arthritis, recovery is hastened by the injection of dead gonococci. At the same time marvelous cures should not be expected, and rest, aspiration of distended joints, massage of the prostate and other surgical and hygienic means should be employed.

30. **Intestinal Amebas.**—In a note Craig criticizes the conclusions of Walker who said (*Jour. Med. Research*, 1908, 17, p. 379) that Schaudinn's classification was incorrect. According to Craig, Walker, studying cultural forms only, had no right so to conclude.

University of Pennsylvania Medical Bulletin, Philadelphia.

May.

31 Undergraduate Medical Association, Univ. Penna., President's Address. O. H. P. Pepper, Philadelphia.
32 Opsonic Therapy in Tuberculosis of Bones and Joints. H. B. Miller, Philadelphia.
33 *Determination of the Excretory Efficiency of the Kidney. H. J. Howard, Philadelphia.
34 Diagnosis and Treatment Based on Visceral Reflexes. M. A. Murray, Philadelphia.
35 *Blood Pressure in Eclampsia. R. C. Davis, Philadelphia.
36 Psychotherapy. L. B. Allen, Philadelphia.
37 Case of Intermittent Lameness. J. A. Kolmer, Philadelphia.
38 Poliencephalitis Superior. Report of Case with Autopsy. E. B. Krumbhaar, Philadelphia.
39 Histologic Changes in Endometrium Incidental to the Menstrual Cycle. G. L. DeWald, Philadelphia.
40 Study of the Bile in the Experimental Production of Colitis in Animals. G. J. Saxon, Philadelphia.
41 Etiology of Empyema. A. I. Murphy, Philadelphia.
42 Lengthening Shortened Bones of the Leg by Operation. P. B. Magnuson, Philadelphia.

33. **Excretory Efficiency of the Kidney.**—Howard describes the method devised by Sir Almroth Wright based on Koranyi's theory of renal efficiency, for testing the blood and urine, and tabulates the results of a series of thirteen physiologic and pathologic cases in which this method was used. He concludes that salt retention is shown by the excretory quotient method; that this method is superior to that of testing for albumin and possesses the following special advantages: 1. It may assist in differentiating between a physiologic and a pathologic albuminuria. Life insurance examiners may find it of special value. 2. It may help us to ward off the onset of true nephritis by giving an early diagnosis. 3. It may be an advantage in arranging a patient's diet. 4. In case of kidney disease we may inform ourselves at any time as to the condition of renal excretory efficiency.

35. **Blood Pressure in Eclampsia.**—Davis arrives at the following conclusions: In all cases of eclampsia there is a marked elevation of blood pressure. Under treatment when a fall in blood pressure is noted, there is also seen a fall in the amount of albumin. The most efficient agencies for reducing blood pressure have been found to be vapor baths, puncture of the membranes, nitroglycerin and venesection. The most successful factors in the treatment of eclampsia have been found to be the blood pressure depressors and toxin eliminators.

American Journal of Surgery, New York.

May.

43 *Modern Aspects of the Cancer Problem. R. Park, Buffalo.
44 Simplified Equipment and Management for the Operating Room. W. S. Schley, New York.
45 Roentgen Ray in Dermatology: Truth and Fallacy Concerning X-Ray Dermatitis. A. C. Geyser, New York.

46 Submucous Operation on the Nasal Septum, with Plea for More Rapid Technic. J. E. Mackenty, New York.
47 Blood Examination in Surgical Diagnosis; Study of Scope and Technic. I. S. Wile, New York.
48 Rectal Don'ts. J. M. Lynch, New York.

43. **The Cancer Problem.**—Park discusses the history of the various views as to the nature of cancer; that it is due to local inflammation, to heredity, to embryonal remains, to traumatism. These have all been found absolutely unsatisfactory and should be discarded. The intrinsic theory, which attributes it to cellular action, fails to explain the essential features. Park insists that cancer and the so-called cancer cells are to be explained on the theory of some extrinsic cause. He insists on a parasitic theory. He refers to its much greater prevalence among women, and insists that there is a real and not a seeming increase in cancer. In Buffalo, every house in which cancer deaths have occurred is noted, and it is found that in numerous instances several deaths from cancer have occurred in the same house. He insists that the disease is actually contagious; in evidence of which he notes such instances as the development of cancer along the tract of a trocar that has accidentally wounded a cancerous liver in paracentesis for ascites, and linear scar cancers, when a knife that has touched cancer tissue is used in healthy parts. Transmission takes place in surfaces constantly in contact. He refers to inoculation experiments, especially those at the Butler Laboratory. There is absolutely no special carcinoma cell, he asserts; the parasites of cancer seem to be practically omnipresent. He enumerates the possible courses of transmission through contact with our neighbors. The very term metastasis implies that some infectious element is transported from one part of the body to another. The theory by which the cancer cell is erected into being its own parasite is far more revolutionary, and taxes the imagination far more than the theory which seeks to find the explanation in some extrinsic agent and which is already receiving such striking corroboration from both clinical experience and the experimental laboratory. Cancer begins as a result of local conditions. It may be that there are several organisms capable of producing it. Cancer, with all its local characteristics and its fatal termination, is a disease without a symptomatology of its own. The finding of a tumor is the first sign, in cancer of the stomach, for instance, not a symptom. The symptoms are not distinctive of cancer. He believes that it would be far better if condemned murderers could be subjected to legitimate experiments—such as have been made with animals, for instance, into the production of retrocession of malignant tumors—than to electrocute them.

Yale Medical Journal, New Haven.

May.

49 Medical Treatment of Cystitis. F. H. Reilly, New Haven.
50 *Infantile Scurvy. H. M. Steele, New Haven.
51 Examination of Venereal Patients. E. Bishop, Brooklyn, N. Y.

50. **Infantile Scurvy.**—Steele reports a number of cases supporting the view that a prominent factor in the causation of infantile scurvy consists in the use of dried, devitalized, proprietary infant foods, and to the fact that the knowledge of the danger of bacteria in milk has led to boiling and sterilization.

Albany Medical Annals.

May.

52 Two Cases of Acute Ascending Paralysis, of the Type of Landry, with Recovery. H. C. Gordinier, Albany.
53 The Bier-Klapp Suction Method as an Aid to Treatment in Suppurative Conditions of the Neck. J. M. Berry, Troy, N. Y.
54 Relation of the General Practitioner to the Specialist and Laboratory Worker. R. H. Irish, Troy, N. Y.
55 *Observations Made in 300 Consecutive Cases of Severe Traumatisms with Especial Reference to Fractures. A. Holding, Albany.
56 Personal Experiences of a Patient in a Hospital for the Insane.

55. **Traumatisms with Reference to Fractures.**—Holding summarizes 300 cases of traumatism, 87 per cent. being complicated with fracture. He calls attention to the following points: 1. The inadequacy of routine methods of treatment of fractures according to their location, without knowing the exact shape and position of the fragments and allowing for the distortion of muscular spasm. 2. It is noticeable that the more perfect the coaptation of the fragments, the less is the amount of the callus. 3. Neglect of proper approximation leads to non-union, and skiagraphy would not only enable one to avoid non-union in a majority of cases, but a skiagraphic examination will frequently enable the surgeon to overcome the non-union by modifying the position of the parts so as to allow the fragments to come into apposition. 4. Radiographic examination after the bone is set is of as much or more importance than radiographic examination before the bone is set. 5. Circumflex neuritis is a common result of traumatism of the shoulder, and it frequently simulates a dislocation of the shoulder. 6. A common fracture at the shoulder is one in which the greater tuberosity of the humerus is pulled off by muscular violence. This fracture produces no palpable deformity, but is characterized by great bone tenderness, swelling and late ecchymosis.

Archives of Pediatrics, New York.

May.

57 Case of Anorexia Nervosa in an Infant. J. P. C. Griffith, Philadelphia.
58 *Pathologic Aspects of Kidney Lesions in the Infant. R. L. Thompson, St. Louis.
59 *Clinical Aspects of Kidney Lesions in the Infant. J. M. Brady, St. Louis.
60 The Calculation of Milk Percentages, with Rules and Examples. H. E. Hale, New York.
61 Empyema and Gangrene of the Lung Complicating Typhoid in a Child of Six. D. J. Miller, Philadelphia.
62 *Indication for Stimulants in Pediatric Practice. S. Welt-Kakels, New York.
63 *Hydrotherapy in Childhood. F. Grosse, New York.
64 Use of Analgesics in Pediatric Practice. L. G. Kerr, Brooklyn, N. Y.

58. **Pathology of Kidney Lesions in Infants.**—Thompson describes the autopsy result in 50 cases of infants that came to autopsy, undertaken to investigate the idea advanced that nephritis is commoner in infants than is generally supposed. In 23 cases death was due to bacterial infection, in 27 cases not to bacterial infection. From a pathologic standpoint all lesions of the kidney are grouped primarily as (1) acute, (2) chronic; and secondarily as (a) degenerative, (b) exudative, and (c) proliferative. Errors of development were represented by occlusion of the ureter by congenital narrowing of its bladder insertion, and a unique fetal anomaly consisting of abnormal hyperplasia of the pyramidal portion of a fetal lobule in one kidney. The tubules of cortex and pyramid failed to join, and there was a zone of undifferentiated tissue between the two segments, with resulting cystic dilatation of tubules. Thompson considers the case to offer strong evidence of the dualistic theory of kidney development. Uric-acid infarcts were frequently found, calculus only once, kidney cysts were present in 10 per cent. of the cases. Congestion was often extreme. With regard to inflammation he finds that marked disturbances of the circulation and slight or moderate degenerative processes are exceedingly common in the infant kidney. These processes, while they undoubtedly give rise to albumin and casts in many instances, are of a type that is easily repaired, and probably do not influence the permanent integrity of the kidney. Severe kidney lesions, such as permanently injure the kidney parenchyma or lead to death, are rarely found in routine autopsies in infants.

59. **Kidney Lesions in Infant.**—Brady refers to the so-called physiologic albuminuria of the new-born, for which he has not found a satisfactory explanation in the literature. He suggests that it may be explained in part by the excessive desquamation of epithelial cells from the urinary tract frequent in the first days of life. Nucleoalbumin is a product of epithelial cells lining the mucous membrane. This condition should not be termed albuminuria at all. The routine examination of urine of infants should be more frequent than it is. In males, the urine may be secured by tying a rubber bag about the penis; in females, by placing a glass vessel over the vulva and causing contraction of the bladder by a cold hand. Nephritis can not be based in infants on the presence of casts and albumin in the urine, since slight degenerative changes may cause them. Nephritis in infants is usually mild and secondary to pathologic processes elsewhere. Slight nephritis can not be diagnosed *intra vitam*.

62. **Stimulants in Pediatrics.**—Welt-Kakels says that recovery from acute disease is dependent largely on the relative in-

tegrity of the heart muscle. The prevention of its impairment is accomplished rather by avoiding depressing drugs than by the early administration of cardiac stimulants which are not indicated until weakness of the heart becomes evident. Alcohol is one of the best heart stimulants. Children tolerate it well and the author would not like to be without it at the bedside of a feverish child. It may be given earlier in lobar pneumonia than in other acute fevers; good brandy or whisky, 2 to 4 grams (30 to 60 minims), well diluted for a child of one year, or twice that amount for one of from 3 to 4 years. It is valuable in septic cases with asthenia, in erysipelas, and in septic varieties of diphtheria or scarlet fever. Digitalis, strophanthin or strychnin, besides alcohol, is indicated in acute fevers by weakened first sound, exhilarated pulse and reduced arterial tension. Cumulative effect is more frequent in children than in later life. In extreme cases of heart failure, in addition to the drugs named, camphor or caffein is at our disposal. The author also discusses the uses of nitroglycerin, oxygen, venesection and hypodermoclysis.

63. **Hydrotherapy.**—Grosse describes the uses of hydrotherapy in childhood. It is particularly a useful and ready measure in summer complaints and chronic digestive disorders, and in all cases of faulty metabolism. No hydriatic measure is possible, however, without a thermometer or a watch, for exactness is important.

American Journal of Urology, New York.

May.

65 Symptomatology, Diagnosis and Treatment of Impacted Renal Calculus. F. M. Johnson, Boston.
66 *Prostatic Disease in the Diabetic. H. Stern, New York.
67 Treatment of Movable Kidney. S. Metrovitch, Odessa, Russia.
68 Pyuria. F. Legueu, Paris.
69 *Plea for Prompt Use of Retrograde Catheterization in Surgical Treatment of Impassable Stricture of the Urethra. E. Jonas, St. Louis.
70 Prostatectomy and Bladder Stone. R. Harrison, London, Eng.

66. **Prostatic Disease.**—Stern says that prostatic disease in the diabetic is commonly overlooked by the family physician, who is wont to ascribe certain symptoms of the former to the diabetic syndrome. A prostatic state may ensue in the diabetic ten, twenty or more years earlier than in the normal individual. Early prostatism in the diabetic may be the result of gonorrheal prostatitis in which the sugar-laden urine has participated in the perpetuation of the inflammatory process, or it may be due to another infection; or the pathologic changes in the gland may have been evoked by the direct action of the urinary glucose, its yeasts and fungi; or, finally, nutritive or secretory disturbances of the gland may have been the cause. The early prostatic state in diabetics is much akin to the same condition consequential to senile hypertrophy, except that in early non-infectious hypertrophy all three lobes of the glands are usually involved. The pre-senile prostatic state in the diabetic appears at the onset in the form of transitory seizures. Gradually the attacks diminish in severity and attain a certain degree of chronicity. Prostatic disease of infectious origin may antedate the diabetic state; senile hypertrophic changes in the prostate may exist prior to the outbreak of diabetic phenomena; the prostatic disease may be the result of the diabetic urine; the condition may be the consequence of the self-same causes which give occasion to the diabetic deterioration, or it may be a direct result of the latter. Constitutional prostatism, the form of chronic prostatic disease due to systemic disorder or decline, is probably the mediate consequence of an inflammatory process starting in the blood vessels and connective tissue structures of the gland itself. The changes in the prostate in constitutional prostatism are of similar character to those found in other organs of the affected individual. Unless antidiabetic treatment is applied, prostatic disease in the diabetic will not improve, in spite of all local therapy.

69. This article was published in the *Medical Fortnightly*, June 10, and was abstracted in THE JOURNAL, July 11, p. 167.

Western Medical Review, Omaha.

May.

71 *Clinical Manifestations of Ileus. A. F. Jonas, Omaha.
72 *Treatment of Ileus. B. B. Davis, Omaha.
73 Conservative Treatment of Frontal Sinus Disease. G. H. Bicknell, Omaha.
74 Fibroids Complicating Pregnancy, Labor and Puerperium. P. Findley, Omaha.

71. **Ileus.**—Jonas says that it is often difficult to distinguish between the dynamic and mechanical ileus, but one can determine with a fair degree of accuracy many cases wherein the fecal current has been stopped by mechanical causes. In a case of postoperative bowel obstruction, in which paroxysmal pain, especially if localized, is a prominent feature, particularly where there is active local or general borborygmus, a recurring peristalsis that seems to cease at a given point—determinable by a stethoscope and sometimes visible through thin abdominal walls—and when the movement of intestinal gases can be heard by the unaided ear, a mechanical ileus is more than probable; but when an operation is followed by obstinate bowel obstruction that can not be relieved by the usual means, when such an obstruction is manifested by a general abdominal tenderness and pain, an absence of local tenderness, increasing tympanites, an absence of all peristalsis, with an elevated temperature, an increased pulse rate, restlessness of the patient and an anxious and distressed facial expression, it is certain that we have to deal with dynamic ileus.

72. **Treatment of Ileus.**—Davis holds that late operations are the cause of the former high mortality in mechanical ileus. The stomach should always be washed out before operating. Rapidity, without haste, and gentleness are required, and not too much should be attempted. When the coils of intestine are greatly distended they should be emptied of toxic contents as completely as possible. If resection is required it should be undertaken at the primary operation only when the patient's general condition warrants it.

Wisconsin Medical Journal.

May.

75 Effects of Upper Respiratory Obstruction. E. M. Turner, La Crosse.
76 Case of Korsakoff's Psychosis. U. O. B. Wingate, Milwaukee.
77 *Drinking Water—Its Use and Abuse. J. H. Voje, Oconomowoc.

77. **Drinking Water.**—Voge discusses the need of drinking water, and says that if water, cold or hot, is recommended but for a short time it certainly may do a great deal of good, especially also if the diet is corrected and plenty of exercise taken. The drinking of very cold water is certainly harmful. He sums up his observations practically as follows: An ideal drinking water is clear, tasteless, gives no nitrate reaction, contains a small amount of earthy and alkaline salts, some carbonic acid gas, and has a temperature of about 50 degrees. The continuous use of ice water is harmful; it paralyzes the gastric and duodenal nerves. Filtered lake, river and rain water come next to pure spring or well water in wholesomeness. Boiled water is repulsive, non-refreshing, and should only be used when good natural water can not be obtained. Distilled water is harmful to the system because it abstracts from our cells vital salts, especially iron salts, thus disturbing electric equilibrium and reducing the power of resistance. Distilled waters have long been discontinued in eyewashes on account of the irritation of the conjunctiva resulting from their use. Any drinking water, if persistently taken in excess, is harmful; it produces hydremia, which interferes with proper oxidation. The cell tone is gradually lessened, the power of resistance is reduced, and the door is opened to infection and chronic ailments of an asthenic nature; it overburdens the circulatory apparatus and aids in producing arteriosclerosis. Water is an excellent vehicle for medicines and minerals. An excellent example of this we have in the natural mineral waters of the earth. As a remedial agent the mineral waters, if properly selected according to indications, are superior to the drugs in many ailments. Mineral waters should be used and taken at their origin. Many springs have compositions, gases or radioactive elements, or contain even radium, all of which qualities would be destroyed or altered in bottling and shipping. For a number of years physicians have made use of water to carry chlorid of sodium into the blood or tissues, with happy results, as a reviver.

New Orleans Medical and Surgical Journal.

May.

78 *Operations on the Tubes and Ovaries. G. R. Fox, Moreauville, La.
79 *Cases of Infantile Scurvy. E. D. Fenner, New Orleans.
80 Laryngeal Tuberculosis. H. Dupuy, New Orleans.
81 Early Symptoms of Pulmonary Tuberculosis. G. S. Bel, New Orleans.
82 Electricity in Medicine. N. F. Thiberge, New Orleans.
83 Medicolegal Consideration in Cases of Mental Defect or Disease. E. M. Hummel, New Orleans.
84 *Is Sexual Continence Compatible with Health? C. Chassaignac, New Orleans.
85 Malarial Hematuria. O. M. Patterson, Bastrop, La.
86 Trachoma. W. L. Egan, Shreveport, La.
87 Hypodermic Treatment of Syphilis. C. J. Gremillion, Alexandria, La.

78. **Operations on Tubes and Ovaries.**—Fox describes the indications for operation on the ovaries and tubes, respectively, and summarizes the arguments in favor of conservatism. He discusses the internal secretion of the ovary and the question of ovarian transplantation, summarizing his conclusions as follows: A majority of gynecologists favor conservatism. The number of pregnancies occurring after tubal operations is very small; the results after plastic work on the ovaries are better; age, the presence of pus, tuberculosis and malignant disease indicate, as a rule, radical work; the prolapsed ovaries, generally speaking, should be elevated in the pelvis by suspension operations on the uterus, by shortening the ovarian ligament, or by placing the ovary in front and on top of the broad ligament; the functions of the tube and the ovary should be conserved whenever consistent with health; the artificial induction of the menopause brings serious disturbance into the life of the patient, and, finally, ovarian transplantation, experimentally and clinically, has in a limited field been productive of satisfactory results.

79. **Infantile Scurvy.**—Fenner discusses the pathology and symptomatology of infantile scurvy and its relation to feeding. He describes cases to indicate the variety of the clinical manifestations that it may present.

84. **Sexual Continence.**—Chassaignac discusses the question whether sexual intercourse is a physiologic necessity in the adult, abstention being *per contra* injurious in health, and answers in the negative. He adds: I have noticed only three classes of individuals who are apt to be noticeably disturbed by continence: those who have been indulging in intercourse regularly and who without inhibitory interposition of some physical ailment or mental shock, are suddenly deprived, but the effect in these is only temporary and they can adjust themselves to the new condition, as is evidenced by the gradually diminishing frequency of involuntary nocturnal emissions; secondly, those who are to a great extent idle or dissipated, and who, while they are continent for some probably compulsory reason, do not avoid temptation or try to keep their minds free from impure thoughts; lastly, those whose sexual organs are to a certain degree in a pathologic condition.

Northwestern Lancet, Minneapolis.

June 15.

88 *Indications for Craniotomy. R. E. Farr, Minneapolis.
89 *What Is Constituted in Insanity? H. A. Tomlinson, St. Peter, Minn.
90 Ideal Medical Education. F. F. Wesbrook, Minneapolis.

88. **Cranial Surgery.**—Farr urges a careful scrutiny of all head injuries and the elevation of all depressed fractures, whether simple or compound; craniotomy in the presence of focal symptoms after an injury to the head, and in epileptics in whom the evidence points to the possibility of trauma as a cause. In cases presenting evidence of brain tumor, trephining should be done, either to remove the tumor, or, if that is impossible, to prevent blindness.

89. **Insanity.**—Tomlinson says that primarily, in determining what is constituted in insanity, we have to deal with the cerebral potentiality of the individual, as influenced by the conditions in his environment which exhaust his potentiality directly by overtaxation, or indirectly by the influence of impaired vitality in the general organism on the limited mental capacity of the individual. He calls attention to the fact that general conditions are practically uniform for all persons subjected to their influence, and that if they are harmful to some it is because of an inherent weakness in the individual that unfits him to adapt himself to them. The result is apparent to all, but strangely enough, Tomlinson says, it has not been recognized that the lack of mental capacity that shows itself in imperfect control, and incapacity for persistent effort and definiteness of direction is the evidence of instability and defect, and, therefore, the expression of a limited potentiality.

Therapeutic Gazette, Detroit.

June 15.

91 *Local Use of Magnesium Sulphate Solution in Erysipelas. H. Tucker, Philadelphia.
92 Hypersusceptibility of Man to Horse Serum. F. Royer, Philadelphia.
93 Pathology in Its Practical Bearings on the Treatment of Certain Diseases of the Skin. L. D. Bulkley, New York.
94 Opium Habit in North China. J. H. Ingram, Tungchow, China.
95 *Abuse of Arsenic in the Treatment of Diseases of the Skin and the Deleterious Results That May Occur from Its Injudicious Employment. J. F. Schamberg, Philadelphia.

91. **Magnesium Sulphate Solution in Erysipelas.**—Tucker reports the good results obtained at the Philadelphia General Hospital, in his ward, in 19 exceptionally severe or complicated cases of erysipelatous infection. In 35 uncomplicated cases all patients recovered in from two to seven days, the pain and local discomfort being relieved in a few hours. No other treatment was given. He describes the technic as follows: The application consists of a saturated solution of magnesium sulphate in water. This is applied in facial cases on a mask consisting of from fifteen to twenty thicknesses of ordinary gauze, of sufficient size to extend well beyond the area involved, a small opening being made to permit breathing; no opening, however, is cut for the eyes. The mask is then thoroughly saturated with the solution, applied and covered with oiled silk or wax paper, and wetted as often as necessary to assure a moist dressing—usually once in two hours, depending on the time of year or the temperature of the room. The dressing should not be removed oftener than once in twelve hours, to permit an inspection of the parts, and then should be immediately reapplied; the infected area should not be washed while the treatment is employed.

95. **Dangers of Arsenic.**—Schamberg considers the uses of arsenic in medicine and discusses its toxic symptoms. He considers the drug unreliable and in a large number of skin affections of little or no utility. It is most useful in psoriasis, lichen planus and acute pemphigus, but it is excessively and indiscriminately prescribed by many practitioners. It may produce profound structual changes in the nerve, aggravate inflammatory dermatoses, give rise to various erythematous, papular and vesicular eruptions, simulating dermatoses, and cancer of the skin has been reported as following its long-continued use. Practitioners should, therefore, exercise greater care and not prescribe it in the absence of specific indications, and such prescriptions should not be renewed without sanction.

Journal of the Tennessee State Medical Association, Nashville.

June.

96 *Medical Organization; Its Purposes and Possibilities. A. B. Cooke, Nashville.

96. Abstracted in THE JOURNAL, April 25, 1908, p. 1372.

Texas State Journal of Medicine, Fort Worth.

June.

97 *Progress of Medicine in Texas. C. E. Cantrell, Greenville.

97. **Progress of Medicine in Texas.**—Cantrell, among other things, gives a ten years' retrospect of Texas medicine and discusses sanitary measures in relation to boards of health and the industrial value of public health protection. In order to show results of boards of health, he gives graphic representations of deaths from typhoid, tuberculosis, malaria, diphtheria, scarlet fever and measles in various states, showing the decrease in these diseases under efficient sanitary administration.

Annals of Surgery, New York.

June.

98 *Reminiscences of the Early Days of the American Surgical Association. J. E. Mears, Philadelphia.
99 *Psychical End-Results Following Major Surgical Operations. J. G. Mumford, Boston.

100 *Surgical Aspects of Exophthalmic Goiter with Reference to the Psychic Factor. G. Crile, Cleveland.
101 *Late Results After Operations for Benign Diseases of the Stomach and Duodenum. B. G. A. Moynihan, Leeds, Eng.
102 *Gastric and Duodenal Ulcers. W. J. Mayo, Rochester, Minn.
103 *End-Results Following Operation for Benign Diseases of the Stomach and Duodenum. J. B. Deaver, Philadelphia.
104 *How Frequently Do Gastric Ulcers Become Carcinomata? W. L. Rodman, Philadelphia.
105 *Gastric and Duodenal Ulcers Secondary to Wounds of the Urinary Bladder. J. B. Roberts, Philadelphia.
106 *Melanotic Sarcoma of the Common Bile Duct and the Ampulla of Vater. F. J. Shepherd, Montreal.
107 *Experiments in Flushing the Intestinal Canal with Salt Solution Through Multiple Enterotomy Openings. G. H. Monks, Boston.
108 *Primary Carcinoma and Sarcoma of the Appendix. R. H. Harte, Philadelphia.
109 *Carcinoma of the Appendix with Metastasis to the Ileocolic Glands. R. G. Le Conte, Philadelphia.
110 *Splenectomy in Banti's Disease. J. E. Summers, Jr., Omaha.
111 *Stone in the Bladder with Intermittent Pneumaturia for Three Years and Subsequent Formation of Fecal Fistula. A. T. Bristow, Brooklyn, N. Y.
112 *Nephrolithiasis. D. Barrow, Lexington, Ky.
113 Treatment of Fractures of the Femur. O. H. Allis, Philadelphia.
114 *Modern Medicine and Surgery in the Orient. J. E. Mears, Philadelphia.

98. Abstracted in THE JOURNAL, May 23, 1908, p. 1718.

99, 106 and 111. Abstracted in THE JOURNAL, June 20, 1908, pp. 2102, 2103 and 2104.

100 and 107 to 110. Abstracted in THE JOURNAL, June 27, 1908, pp. 2150 and 2151.

101 to 105 and 112. Abstracted in THE JOURNAL, May 30, 1908, pp. 1822, 1823 and 1825.

114. This article also appeared in the *Boston Medical and Surgical Journal*, June 11 and 18.

Journal of Cutaneous Diseases, New York.

May.

115 Hydroa Puerorum (Unna). M. Haase, Memphis, and R. Hirschler, Philadelphia.
116 Framboesia Tropica (Yaws, Pian, Bouba). A. Castellani, Colombo, Ceylon.
117 A Palliative Treatment of Elephantiasis. Id.

Maryland Medical Journal, Baltimore.

May.

118 Growth of Our Knowledge of Infectious Diseases. J. H. M. Knox, Baltimore.
119 Postoperative Complications of Peritonitis. R. Winslow, Baltimore.

Progressive Medicine, Philadelphia.

June.

120 Hernia. W. B. Coley, New York.
121 Surgery of the Abdomen, Exclusive of Hernia. E. M. Foote, New York.
122 Gynecology. J. G. Clark, Philadelphia.
123 Diseases of the Blood. Diathetic and Metabolic Diseases. Diseases of the Spleen. Thyroid Gland and Lymphatic System. A. Stengel, Philadelphia.
124 Ophthalmology. E. Jackson, Denver.

Iowa Medical Journal, Des Moines.

May.

125 Points in the Differentiation of Organic and Functional Nervous Diseases. F. T. Stevens, Mount Pleasant.
126 Chorea Gravis. F. A. Ely, Des Moines.
127 Laryngeal Diphtheria. H. G. Langworthy, Dubuque.
128 Anesthetics. C. M. Linehan, Chicago.

Monthly Cyclopedia and Medical Bulletin, Philadelphia.

May.

129 Autoprotective Resources of the Body—A New Foundation for Scientific Therapeutics. C. E. De M. Sajous, Philadelphia.
130 Therapeutics in the Light of Ecology. J. V. Shoemaker, Philadelphia.
131 United States Pharmacopeia from a Physician's Standpoint. J. M. Anders, Philadelphia.

Colorado Medicine, Denver.

May.

132 Infant Feeding Methods. F. P. Gengenbach, Denver.
133 Solutions of the Problem of Infant Feeding. E. S. Pratt, Denver.
134 Food Adulterations in Relation to Health. E. C. Hill, Denver.
135 *Torsion of the Omentum. W. W. Grant, Denver.
136 Case of Congenital Syphilis. F. W. Kenney, Denver.
137 Case of Interstitial Punctate Infiltration of the Cornea. F. R. Spencer, Boulder.

135. Abstracts in THE JOURNAL, Feb. 1, 1908, p. 397.

Journal of Outdoor Life, Saranac Lake, N. Y.

May.

138 Suggestions to Ex-Patients. H. S. Goodall, Lake Kushaqua, N. Y.
139 Maryland State Sanatorium. H. W. Buckler, Baltimore.
140 A Fresh-Air School. E. A. Stone, Providence, R. I.
141 Fresh-Air Methods at the Home for Consumptives, Chestnut Hill, Pa. M. Topham.

FOREIGN.

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

Lancet, London.

June 20.

1 Melitensis Septicemia. J. W. H. Eyre.
2 *Congenital Dislocation of the Hip and Its Treatment. H. A. T. Fairbank.
3 *Supports-in-Chief of the Female Pelvic Viscera. R. H. Paramore.
4 *Thirty Consecutive Cases of Appendicitis with Diffuse Peritonitis. C. A. R. Nitch.
5 Measurement of the Stereoscopic Visual Acuity. G. T. B. James.
6 Acidity of the Urine. F. A. Watkins.
7 Sarcoma of the Right Os Innominatum Simulating Appendix Abscess. E. H. R. Harries.

2. **Congenital Dislocation of the Hip.**—Fairbank says that the condition of the hip joint varies according to the age of the patient; the older the child, the greater the alteration in all structures composing the joint. He describes the changes in the acetabulum and capsule. The femur is often well formed, the most obvious thing about it being the size of the head, which is disproportionately large as compared with the acetabulum. The upper end of the bone is almost invariably imperfectly ossified; the neck is short and may be depressed. An increase of the angle made by the axis of the neck of the bone with the transcondylar line is very common. The pelvic deformity, apart from the change in the acetabulum, is not of much practical importance, as even in bilateral cases little, if any, obstruction to delivery is offered during labor (congenital dislocation of the hip is far commoner in females than males—about 86 to 14 per cent). The conjoint rami of the pubis and ischium show imperfect ossification. The head of the femur may be displaced upward and backward, or upward and forward, or forward only. A general laxity of ligaments may be present, and occasionally a number of other deformities. Of signs and symptoms, even before the child walks, something may be noticed wrong with the position or shape of the leg. When walking is begun, a progressive limp and swaying over the hip are noticed, the patient gets tired easily, there is a difference in contour of the trochanteric region. Lordosis is present only in unilateral cases in older children. The affected leg is shorter, the trochanter displaced upward and usually backward. Fairbank doubts whether Nélaton's line is of any assistance, and hardly ever makes use of it in children. The movements of the limbs are commonly limited in abduction and internal rotation. The "telescopic movement," he thinks, is more difficult to make sure of and less reliable than that of feeling the head of the femur in its abnormal position, but it is a valuable confirmatory sign and should always be looked for. In bilateral cases the symptoms and signs are similar, and in most cases more marked, the gait is worse and quite characteristic. As to treatment, he discusses in considerable detail the Lorenz, or bloodless method, and the open methods of Hoffa-Lorenz and Burghard. The dangers of the Lorenz method—which the author describes in detail—are avoidable, but must never be forgotten: they are, fracture of the femur or pelvis and injury to the peroneal, anterior crural, and sciatic nerves. As to the ultimate results, the walk is not likely to be a good one until some time after the leg has come down to its normal condition. It must be remembered that every anatomic cure is not necessarily accompanied by a perfect functional result, though it is so in the majority of cases.

3. See Abstract No. 36.

4. **Appendicitis with Diffuse Peritonitis.**—Nitch points out that by lavage of the peritoneum the protective phagocytes are washed away and myriads of highly infected bacilli are carried by the stream to remote parts of the abdominal cavity, there to infect fresh areas of the peritoneum and cause degeneration of the few remaining protective phagocytes. He

shows, by a table contrasting the results of cases dealt with by general irrigation and by dry sponging or local irrigation respectively, that the mortality has fallen from 82 per cent. under the former method to less than 10 per cent. under the latter. He records 30 cases with 3 deaths in patients treated by the dry sponging method. On returning to bed after operation the patients were placed in the Fowler position, and in addition, the pillows were so arranged as to tilt them well over to the right side. Continuous rectal infusion, only attempted in one case, was soon discontinued owing to the alleged discomfort which it caused. Four patients who were very ill, with a rapid pulse, frequent vomiting, and abdominal distention, received immediate relief from subcutaneous injections of anti-colon bacillus serum. A large dose of calomel was always administered twelve hours after operation, and if necessary, followed in another twelve hours by large turpentine enemata. In the majority of cases convalescence was rapid and uninterrupted.

British Medical Journal, London.

June 20 (Hospital Number).*

8 *Nine Hundred Cases of Tuberculous Disease of the Hip. A. A. Bowlby.
9 *Functions of an Out-Patient Department. W. Osler.
10 The Future of the Voluntary Hospital and Its Relation to a Reformed Poor-Law Medical Service. L. E. Shaw.
11 General Hospitals and the Provident System. E. C. Beale.
12 Home Hospitals for the Middle Classes. G. Rankin.
13 Notes on the Construction of Cottage Hospitals. H. P. Adams.
14 Separate Operating Rooms and Their Management. G. G. Hamilton.
15 Promotion of Uniformity in the Registration of Diseases in Hospitals. R. F. Tobin.
16 Dental Needs of the Poor of London. J. G. Turner.

*Hospital **Number.**—In addition to the original articles listed above—of which eight refer to hospital affairs—this number contains a series of fifteen editorial articles on various matters connected with hospitals, e. g., the administration of operating theaters, the evolution of the hospital, hospital management, hospitals and taxation, the hospitals of Germany, Paris, Manchester, Edinburgh, Dublin, etc., the neurologic and psychiatric clinics of Germany, and others of more local interest.

8. **Tuberculous Hip Disease.**—Bowlby discusses 900 cases of tuberculous hip joint treated at the Alexandra Hospital without operation (other than the opening of abscess) by rest and extension, good nursing and food, with a mortality of less than 4 per cent. In about 40 cases both hips were affected. There used formerly to be a rule excluding incurable cases, but since Bowlby has been connected with the hospital, he has not refused admission to any case, because he does not think that any cases are incurable, however bad the children are. For twenty-one years he has not treated one of these cases, in either hospital or private practice, by excision of the hip or amputation. He discusses the treatment, complications and condition on discharge, and the importance of treating the patient, not merely the disease, for all tubercle can not be removed from all parts of the body. No child is allowed to walk on the bad leg for at least a year after he is well enough to be up and about on crutches. Bowlby's cases are kept under observation for many years after their discharge. The treatment employed by Bowlby makes no claim to originality. It is described as follows: First, there is absolute rest in the recumbent posture; the child must not even be allowed to sit up at all, because sitting up causes movement at the hip-joint. The joints involved are kept absolutely quiet, and, if necessary, splints are used to insure this at first. Extension is applied in the long axis of the limb in the position in which that limb lies most easily. In many cases when a child is put to bed the joint may be kept fixed, in other cases it may be slightly adducted, and in still other cases it may be abducted; but at first, extension is applied in the axis of the displaced limb. As the muscles allow the limb to come into a better position the leg is to lie flat on the bed, the object of this being to put the limb into the best position for subsequent progression, supposing that, as will happen in many cases, the joint is stiff ultimately. The amount of weight to be applied to the limb to effect extension is small. Very few children require more than two pounds, and they are often comfortable with only one pound. A few cases have required three or four pounds. He does not think any child under 12 years of age will require more than a four-pound weight for the purposes of extension, and that only for a short time. As to abscesses, he insists on these being opened aseptically, cleaning out the contents thoroughly but gently, and draining for a few days. He thinks that there is too great a tendency to numerous incisions. The general treatment means good food, great care in dressing wounds, iron and cod liver oil, and free use of open-air treatment. Lately he has used the new tuberculin treatment and has seen quite a definite improvement in many cases under its use. He discusses excision and concludes that "excision of the head of the bone is never required in the treatment of tuberculous disease of the hip," and holds himself justified in this conclusion by the results he has seen without operation.

9. **Hospital Out-Patient Department.**—Osler describes the functions of the hospital out-patient department as, (1) first aid to all emergency cases, of whatever kind; (2) attendance on those too poor to pay a minimum physician's fee; (3) a free source of consultation for practitioners in respect of their poorer patients who can not afford to pay consultant's fees; (4) relief of the "occasional poor," those who pay ordinary medical bills, but whose means are altogether inadequate to the cumulative expenses of a serious operation, e. g., for appendicitis; (5) as a training school for younger members of the profession; many great reputations have been built up almost entirely on out-patient work. Osler considers it a radical defect of the English system that as a rule no provision is made for pay patients.

Clinical Journal, London

June 17.

17 Descending Testis. C. M. Moullin.

Medical Press and Circular, London.

June 17.

18 How to Distinguish Different Varieties of Chronic Deafness. A. Malherbe.
19 *Dangers and Treatment of Myoma of the Uterus. C. Martin.
20 Alcoholism and Cruelty to Children. R. J. Parr.

19. Published in the *Lancet*, June 6, 1903.

Practitioner, London.

June.

21 Progressive Muscular Atrophy. G. Rankin.
22 Suprapubic Prostatectomy. B. G. A. Moynihan.
23 *Cholecystitis. K. W. Monsarrat.
24 Diagnosis and Treatment of Empyema of the Maxillary Antrum. J. G. Connal.
25 *Puerperal Eclampsia Treated by Renal Decapsulation, with Remarks on the Treatment of Eclampsia. R. J. Johnstone.
26 Retrodeviations of the Uterus and Their Treatment. W. B. Bell.
27 *X-Rays in the Treatment of Cutaneous Tuberculosis. J. G. Tomkinson.
28 Henoch's Purpura Associated with Angioneurotic Edema. A. Don.
29 Review of Clinical Pathology. W. D. Emery.

23. **Cholecystitis.**—Monsarrat points to the necessity for further clinical study of cholecystitis as a well-defined abdominal inflammatory lesion, and more particularly for its separation from the other affections of the bile-channels with which gallstones are associated. Further, he suggests that its proper method of study must be based on the conception of infection as the causative agent from beginning to end, and on the recognition that, although gallstones modify, by mechanical influences, the course and persistence of the inflammatory process, yet they are not in any proper sense the cause of this process. Gallstone disease is a term that should disappear.

25. **Puerperal Eclampsia Treated by Renal Decapsulation.**—Johnstone reports a case and concludes that the value of decapsulation is not proved, but he would not hesitate to recommend an operation so easily performed, and with many theoretical considerations in its favor, in any severe case of eclampsia which did not yield readily to other remedies. As regards the disputed question whether it is better to empty the uterus at once on the onset of the fits, or to wait for full dilatation of the os, his opinion inclines to the view that the sooner the uterus is emptied the better for the patient.

27. **X-Rays in Cutaneous Tuberculosis.**—Tomkinson describes a combined method of treatment for lupus vulgaris of the face, etc., which, having in view relative shortness of treatment and esthetic effect, has, so far, given very encouraging results. It is as follows: Crusts are removed with salicylated ointment; a tentative exposure of from three to five minutes is made on a small area of the lesion. In a few days the rays are directed for five minutes daily on a somewhat wider area unless contraindicated. After three or four exposures embracing the entire surface, in divided doses, it is plastered with Unna's 50 per cent. salicylic acid and creosote plastermulle, renewed daily, previously swabbing with 10 to 20 per cent. cocain, if necessary. In ten days or thereabouts much of the tuberculous tissue will have come away and the lesion, after swabbing with cocain and drying, is painted with the following:

℞.

Phenol	50
Lactic acid	15
Salicylic acid	15
Alcohol, absolute	20

Well agitated before application, as there is a considerable sediment.

A few minutes later the lesion is painted with the following:

℞.

Phenol	80
Alcohol, absolute	20

Where the lesion is extensive it should be cauterized piecemeal. After cauterization it is dressed for a day or two with sterilized lint and carbolic oil (1 in 30); thereafter with a 20 per cent. aqueous solution of ichthyol until healing has taken place. After healing, *x*-ray treatment is recommenced with short exposures of from three to five minutes. At the end of three or four months treatment is discontinued for a considerable time, the patient being subjected to periodic inspection. Tomkinson discusses the disadvantages and advantages of this treatment and says that many cases of a markedly virulent character and of many years' duration have yielded to it.

Quarterly Journal of Medicine, London.

April.

30 A Study of Fifty-two Cases of Rheumatism in Children Under Five Years and an Analysis of One Hundred Cases of Fatal Suppurative Pericarditis in Childhood. F. J. Poynton.
31 *Chloroma and Acute Lymphatic Leukemia, Account of Four Cases, and Discussion of the Pathology of the Diseases. C. H. Treadgold.
32 *Parathyroid Glands: Part II; Their Pathology in Man. D. Forsyth.
33 *Persistent Hereditary Edema of the Legs with Acute Exacerbations. Milroy's Disease. W. B. Hope and H. French.
34 *Inheritance of Certain Human Abnormalities. A. M. Gossage.
35 *Caisson Disease. A. E. Boycott.

31. **Chloroma and Acute Lymphatic Leukemia.**—Treadgold reports four cases and summarizes their interesting pathologic points of similarity and difference. After discussing the subject at length he states that there is no more evidence in favor of the leukemias being infective in origin than there is in the case of neoplasms in general. He sums up his results as follows: Acute lymphatic leukemia is a tumor of malignant nature, arising in the marrow of bones. The growth usually consists of amphoblasts, but leucoblastic and mixed types may occur.

Chloroma is chiefly a tumor of myeloblasts, and arises in the red bone marrow. Perhaps in some cases all the undifferentiated marrow cells are affected, yet myeloblasts always form the majority. The condition lasts longer than acute leukemia, owing to the narrow lesion remaining focal for a longer time, thus allowing these cells to form metastases before the marrow is generally affected.

Acute myelogenous leukemia, a rare condition, is of a similar nature. If the disease were more focal in origin, and therefore clinically less acute, we should get chioroma. We thus have the apparent paradox of a tumor which is pathologicaly less malignant, but clinically more malignant.

Chronic myelogenous leukemia is a tumor affecting myelocytes and to a far less extent the undifferentiated marrow cells which produce them.

Chronic lymphatic leukemia also originates in the marrow. The glands and spleen, however, can not be positively excluded is every case. It is chiefly a disease of the lymphocytes, but amphoblasts occasionally predominate in the subacute cases.

Pseudo-leukemia is a disease affecting the lymphocytes of lymphatic glands.

Myelogenous lymphosarcoma occurs sometimes and is analogous to the cases described by Birk, Leber, Wende and Miller. Possibly it occurs sometimes without co-existing leukemia, the modes of egress becoming blocked, as is the case in glandular lymphosarcoma.

The present nomenclature of these diseases is confusing and does not indicate the true origin of the affected cells. Yet it is hard to suggest an undoubted improvement. Perhaps the following scheme will make the inter-relationships of these diseases clearer:

Lymphosarcoma.—Glandular, tonsillar, thymic, and myelogenous.

Leukoblastoma.—Amphoblastoma, mixed. (These correspond to acute lymphatic leukemia.)

Lymphocytoma.—Myelogenous and glandular. (These correspond to chronic lymphatic leukemia and pseudo-leukemia, respectively.)

Myeloblastoma.—(This condition includes acute myelogenous leukemia and chloroma.)

Myelocytoma.—(Chronic myelogenous leukemia.)

32. **The Parathyroids.**—Forsyth considers, in this continuation of his paper from the last number, the pathology of the parathyroids in man. He arrives at the conclusion that observations on the morbid states of the parathyroids are not yet sufficiently numerous or concordant to justify the opinion that the glands bear a pathogenic relationship to any known disease. Their condition in the several affections of the thyroid gland is variable, and further research is needed in this direction.

33. **Hereditary Edema of Legs.**—Hope and French describe a case of "Milroy's or Meige's disease" in a girl aged 18, and follow up their observations with a careful genealogic research, showing the malady to have been present in 13 out of 42 individuals in five generations. The following points in which the present cases resemble those recorded by others are given by the authors: 1. The restriction of the edema entirely to the legs. 2. The absence of any traceable cause for the edema, general or local. 3. The strong family predisposition to the complaint. 4. The painlessness of the pale swollen legs (apart from the acute attacks in the author's cases). 5. The absence of constitutional symptoms. 6. The sharpness of limitation of the upper level of the edema. 7. The incidence in both males and females. 8. The permanence of the edema when once it has appeared. The following are points of difference between the authors' cases and those of others: Meige lays stress on the absence of "acute attacks," which occurred on more than one occasion in most of the authors' cases. Milroy emphasizes the fact of the edema being present at birth; Meige calls attention to its appearing at puberty; in the authors' cases not once was it actually noted at birth, and the age at which it first attracted attention was sometimes in infancy, sometimes in boyhood or girlhood before puberty, sometimes not until the teens were passed. Finally, the authors state that the condition differs objectively very much from Raynaud's disease, factitious urticaria, and angioneurotic edema, but they think that there is evidence that underlying both these three conditions and their own cases of Milroy's disease there is a common pathology, namely that of a vasomotor neurosis.

34. **Mendelian Inheritance.**—Gossage discusses Mendelian inheritance in families showing tylosis palmaris et plantaris, multiple telangiectasis, epidermolysis bullosa, curly hair, heterochromia of iris, monilithrix, general ichthyosis, diabetes insipidus, and a congenital lock of white hair. He emphasizes the importance of the medical profession recognizing that in the study of these family complaints the normal individuals are quite as important as the abnormal, and that it is advisable that as many members as possible of the family should be personally examined.

35. **Caisson Disease.**—Boycott discusses the circumstances and pathology of the disease, and dwells on the phenomena of bubbles in liquids on which the results of decompression depend. In regard to prevention, the *rationale* of safe, quick decompression is (1) never to allow the nitrogen pressure in the tissues to be more than twice the air pressure, and (2) to make the fullest use of the permissible difference of pressure to get the nitrogen out of the tissues. He discusses the fallacies of uniform slow decompression. As to treatment he says that the only specific treatment of caisson disease is recompression, which should be undertaken immediately symptoms appear, so as to compress the bubbles again before they cause irreparable damage. For this purpose some small chambers supplied with compressed air should be very readily accessible; in its absence divers may be put back under water. The subsequent decompression must be conducted with great caution. Bubbles once formed are not easily reabsorbed.

Journal of Obstetrics and Gynecology of the British Empire, London.

June.

36 *Supports-in-Chief of the Female Pelvic Viscera. R. H. Paramore.
37 *Pathology and Operative Treatment of Displacements of the Pelvic Viscera. W. E. Fothergill.
38 *Excretion of Creatinin in Lying-in Women, with Remarks on Involution of the Uterus. C. N. Longridge.
39 *Chorea During Pregnancy. W. F. Shaw.

36. **Supports of the Female Pelvic Viscera.**—Paramore maintains that the pelvic viscera are maintained in their position by two sets of forces. The one acts from above and pins, so to speak, the viscera in their places. This is the intra-abdominal pressure. The other acts from below, supports the viscera and prevents them from being displaced by any excessive force from above. These two forces, therefore, vary directly with each other; increase of the one reflexly produces increase of the other. This mechanism is under a nervous control, which determines any desired end (coughing, defecation, etc.). The force from below is supplied by the levator ani muscle. This is the essential element in the maintenance of a normal visceral position. When the pelvic floor is inhibited during defecation, the visceral connective-tissue is capable of supporting the viscera temporarily, but it is not capable of more than this. When the muscle has become insufficient this connective tissue is unable to maintain the viscera in position.

37. **Displacements of Pelvic Viscera.**—Fothergill discusses the anatomy of the parts involved, and describes the different results of relaxation of different parts of the perivascular connective tissue as follows:

Relaxation of upper part alone—retroversion.

Relaxation of both upper and lower parts—classic prolapse.

Relaxation of lower part alone—cystocele and vaginal prolapse.

He summarizes the operative treatment as follows:

Classical Prolapse. 1. Anterior colporrhaphy, with union in the middle line of the parametric and paravaginal tissues; posterior colporrhaphy and perineorrhaphy. 2. Ventrofixation in addition to the above, if the anterior colporrhaphy does not support the uterus in a position of anteversion.

Cystocele and Vaginal Prolapse. Anterior colporrhaphy and perineorrhaphy.

Retroversion demanding Treatment. (a) Uterus movable. Alexander's operation as an alternative for pessary. (b) Uterus fixed. Laparotomy, separation of adhesions, treatment of appendages and securing of uterus in anteversion.

38. **Involution of the Uterus.**—Longridge formulates the following conception of the process of evolution: During labor the powerful contractions of the uterus lead to the development of sarcolatic acid in the uterine wall. This acid is neutralized by the circulating blood. When the uterus contracts down after the expulsion of its contents, it is probable that the formation of sarcolatic acid still goes on, but now there is no blood to neutralize it. The uterus is, therefore, left in a condition of anemia and diminished alkalinity, two factors which favor rapidity of autolysis. No recent opportunity of testing the reaction of a normal involuting uterus has offered itself, but the wall of an autolyzing uterus removed by the Porro-Cesarean operation was found thirty-six hours after the operation to be of a distinctly acid reaction. During the first stage of involution when the circulation through the uterus is slight, or even completely absent, the products of autolysis are retained in the uterus. After four or five days the uterus becomes considerably softened, and the blood begins to percolate more freely through the organ. The products of autolysis are then washed out, and owing to the presence of alkaline blood, the rate of autolysis is very much diminished, and the second or slow stage of involution begins.

39. **Chorea in Pregnancy.**—Shaw reports 3 cases which confirm the following previously expressed conclusions: 1. The chorea of pregnancy is due to a toxin which appears to be identical with, or closely to resemble, that found in acute rheumatism. 2. It affects human subjects under two circumstances, both of these being characterized by instability or irritability of the nervous system, namely, childhood and pregnancy. 3. The cause of the instability or irritability of the nervous system in pregnancy, bringing it down to the level of childhood, is the toxemia of pregnancy. 4. In the chorea of pregnancy, therefore, it is more important to remove the predisposing cause than to apply merely symptomatic treatment. 5. The treatment must be eliminative as in the other toxemias of pregnancy. 6. The pregnancy should not be arrested as a rule, as this is generally unnecessary and harmful to the patient as well as to the child.

Bulletin de l'Académie de Médecine, Paris.

June 9, LXXII, No. 23, pp. 615-673.

40 *Self-Inflicted Gangrene. (Pathomimie.) Dieulafoy.
41 Multiple Aneurisms of Aorta. E. Boinet.

40. See Abstract 44, page 174, in THE JOURNAL, July 11.

Presse Médicale, Paris.

June 13, XVI, No. 48, pp. 377-384.

42 Emergency Treatment of Acute Osteomyelitis in Adolescents. P. Hardouin.
43 *Purgative Properties of Phenolphthalein. M. Berthoumeau and A. Daguin.

43. **Purgative Properties of Phenolphthalein.**—This article reviews the literature on this subject and reports extensive personal experimental research. The results show that phenolphthalein increases, on direct contact, the contracting power and the secretion of the intestines. Beyond this action on the intestine, the drug does not seem to induce any noticeable modification in the other functions. In the dose of from 0.5 to 0.8 gm. (7½ to 12 grains) it purges without griping. The laxative dose is 4 or 5 grains.

Revue de Chirurgie, Paris.

June 10, XXVIII, No. 6, pp. 735-889.

44 Epithelioma of Heel. (Epithéliome du talon.) P. Berger.
45 Total Colpohysterectomy by Perineal-Abdominal Route. E. Quénu and P. Duval.
46 *Congenital Goiter. (Goitre chez le nouveau-né.) J. Fabre and L. Thévenot.
47 *Typhoid Cholecystitis and Its Treatment. (Cholecystite typhique.) E. Quénu.

46. **Goiter in the New-Born.**—Fabre and Thévenot have found 130 cases on record. The symptoms are practically the same as in adults, and section of the isthmus or exothyropexy gives good results. These technics not only relieve the threatening compression of the air passages, but lead to the retrogression of the goiter. An inherited tendency to goiter was observed in a number of cases; preventive treatment should always be instituted; this includes good general hygiene, iodids, etc., when a woman with goiter or with goitrous children becomes pregnant. The newly born baby should be given medical treatment. If notwithstanding the attempts to relieve the congestion in the thyroid, the child still has difficulty in breathing, or if there is danger of suffocation, the surgeon should be summoned. Tracheotomy should never be considered. The goiter may appear as a severe or mild affection or fulminating, but the mild form is by far the most frequent. In the cases on record syphilis among the parents was scarcely ever noted, and no signs of syphilis could be found in the children later. The drinking

water taken by the mother may be responsible for the goiter, although predisposing causes may be provided by persistence of the fetal circulation, compression during delivery and congestion from screaming or writhing.

47. **Typhoid Cholecystitis.**—Quénu tabulates 45 cases in which cholecystitis was operated on during typhoid fever. In 34 cases in which operation was done, the mortality was 22.3 per cent. Cholecystostomy answers the indications as it is rapid and simple and drains the gall bladder sufficiently. In case of danger of perforation the gall bladder should be removed at once, he declares.

Archiv für Verdauungs-Krankheiten, Berlin.

June, XIV, No. 3, pp. 241-367.

48 Histology of Human Stomach. (Histologie des menschlichen Magens.) E. Schutz.
49 *Chronic Ulcerative Colitis. W. Zweig.
50 Poisonous Properties of Test Meals and of Stomach Rinsing Water. (Giftigkeit der Probemahlzeiten und der Spülwässer des Magens.) A. Borri.
51 Toxicity of Stomach Content, Lactic Acid and Certain Foods. (Bestimmung der Toxicität des Mageninhalts, der Milchsäure und einiger Speisen.) E. Palier (New York).
52 Etiology, Initial Symptoms and Treatment of Rumination. F. Schilling.
53 A New Gastroscope. (Ein neues Gastroskop.) H. Elsner.

49. **Chronic Ulcerative Colitis.**—Zweig reviews the literature on this subject. He discusses the indications for various methods of operative treatment, but advises first what he calls rectoscopic treatment, which often proves effectual alone. The rectoscope is inserted as far as possible and then a mixture of a mild astringent and a disinfectant powder, with half the amount of salt, is insufflated. The insufflation is continued as the rectoscope is withdrawn until the walls of the sigmoid and rectum are covered with a thick, even layer of the dry powder. He adds the salt on account of Grützner's observation that salt induces antiperistaltic movements which carry small particles from the rectum up into the duodenum. He has never seen any benefit from administration of bismuth and tannin preparations, but Rosenheim has reported good results from repeated small doses of calomel in the febrile recurrences of colitis. Zweig advocates flushing the lower bowel with a mild disinfectant but warns that tannin and silver nitrate are too irritating.

Centralblatt für die Grenzgebiete der Med. und Chir., Jena.

June 5, XI, No. 10, pp. 369-400.

54 *Suture of Nerves. (Nervennaht.) E. Oberndörffer. Review of the Literature, 1896-1907. Commenced in No. 8.

June 17, No. 11, pp. 401-448.

55 *Erysipelas. (Neuere Arbeiten über Erysipel.) V. Bunzl. Commenced in No. 9.
56 *Inflammation of the Omentum. (Epiploitis.) O. Lederer.

54. **Suture of Nerves.**—Oberndörffer has collected from the literature 287 cases of injury of the nerves requiring surgical treatment, with 340 operations. In 105 out of 128 cases in which the nerve was cut the injury was the work of broken glass. In regard to the outcome of operative treatment the sensibility and the motor functioning are less reliable criteria than restoration of the earning capacity. This was restored in 72 per cent. of the 340 cases of suture of the nerve; partially restored in 15 per cent. and results unknown in 13 per cent. Speiser's compilation of 208 cases in 1902 showed 66.5 per cent. fully restored, and 15.5 per cent. partially, with 18 per cent. failures. The proportion of successes is larger with secondary than with primary suture. The location of the injury does not seem to affect the ultimate results. After the fourth year not much benefit from operative treatment need be anticipated. Complete restitution of the sutured nerve is scarcely possible at any time. In conclusion, he discusses 31 cases of nerve grafting or transplantation. The technic is still far from satisfactory although Létiévant's method of crossing or anastomosing nerves seems essential progress. The gap is bridged with a flap from each of the stumps. This "flap autoplastics" has been applied in seven cases, with good results in all.

55. **Erysipelas.**—Bunzl reviews 307 articles that have been published on erysipelas during recent years, giving the details of treatment according to various authors, both with drugs and antistreptococcus serum and diphtheria antitoxin.

56. **Inflammation of the Omentum.**—Lederer reviews seven articles that have appeared recently as a sequel to his extensive review summarized in THE JOURNAL, Feb. 29, 1908, page 735.

Deutsche medizinische Wochenschrift, Berlin.

June 11, XXXIV, No. 24, pp. 1041-1080.

57 Occurrence of Bacteria of Paratyphoid Group in Man, in Animals, Food, Etc. Hübener.
58 Distribution of Paratyphoid Bacilli. W. Rimpau.
59 Nasal Reflexes. A. Koblanck.
60 *Nasal Dysmenorrhea. A. Kuttner.
61 Stomach Secretion After Test Meals. (Vergleichende Studie über die Magensekretion nach Riegelscher Probemahlzeit, Ewaldschem Probefrühstück und Sahlischer Suppe.) Würz.

60. **Nasal Dysmenorrhea.**—Kuttner presents arguments to show that the results of application of cocain to cavernous tissue in the nose are exclusively due to the general action of the cocain and the improvement in the general health which follows restoration of normal permeability in the nose, plus the conscious or unconscious influencing of the patient's imagination.

Münchener medizinische Wochenschrift.

June 9, LV, No. 23, pp. 1217-1264.

62 *Paratyphoid and Melena in the Newly Born. C. Nauwerck and E. Flinzer.
63 *Absence of Reaction to Old Tuberculin in Persons Free from Tuberculosis. (Wirkung des Alttuberkulins auf den tuberkulosefreien Menschen.) F. Hamburger.
64 Goiter. (Der Kropf und seine Behandlung.) G. Hesse.
65 *Vaginal Cesarean Section in General Practice. (Vaginaler Kaiserschnitt.) Lunckenbein.
66 *Graser's Operation for Large Umbilical and Abdominal Hernias. (Nabel- und Bauchbrüche.) K. Port.
67 Gastric Crises Simulating Stenosis of Pylorus. O. Eschbaum.
68 Trauma and Appendicitis. K. Vogel.
69 Silk Tendon as Substitute for the Peroneus. (Peroneusersatz durch Seidenplastik.) E. Kirsch.
70 Apparatus for Lavage of Bladder. (Blasenwaschung.) O. Kraus.
71 Gargling with Mouth Closed. (Therapie der Ozaena.) H. Schmidt.

June 16, No. 24, pp. 1265-1320.

72 Physiologic Tests of Drugs. (Physiologische Wertbestimmung von Arzneimitteln.) R. Gottlieb.
73 *Action of Passive Hyperemia in Animal Experimentation. (Wirkung der Stauungshyperämie im Tierexperiment.) P. Frangenheim.
74 *Cytologic Findings in Conjunctival Tuberculin Reaction. (Ophthalmozytodiagnose.) R. Dietschy.
75 Bang's Method for Titration of Sugar. (Bangsche Methode der Zuckertitration.) P. Dilg.
76 *Pubiotomy and Induction of Premature Delivery in the Home. (Hebeosteotomie und künstliche Frühgeburt im Privathause.) A. Mueller.
77 *Rupture of Rectum. (Berstungsrupturen des Rektums.) L. Burkhardt.
78 *Technic for Roentgen Treatment of Deep-seated Processes. F. Dessauer.
79 Insufflation of Calomel in the Nose in Syphilis. (Zur Syphilistherapie.) A. Eysell.
80 Method of Arresting Acute Otitis Media. (Kupierung der akuten Mittelohrentzündung.) H. Obermüller.
81 Epidemic of Cerebrospinal Meningitis. (Genickstarreepidemie in der Pfalz. Frühjahr, 1907.) J. M. Huber. Commenced in No. 23.

62. **Paratyphoid and Melena in New-Born Infant.**—The case reported is the first on record in which the specific paratyphoid bacillus was transmitted by the mother to the fetus; the latter at birth presented the signs of severe paratyphoid infection. The lesions were multiple foci of necrosis of the stomach, with inflammation and ulceration, enlargement of the spleen, otitis and cholecystitis and hemorrhagic diathesis. The child lived for 36 hours. The mother's sickness commenced four weeks before its birth. The predominance of the gastrointestinal lesions in this case warns against concluding as to the portal of entry of the germs from their most prominent localization in any given case.

63. **Action of Tuberculin on Children Free from Tuberculosis.**—Hamburger relates that 43 children, injected with from 10 to 100 mg. of "old" tuberculin—after negative response to the cutaneous test—never responded with the slightest general reaction of any kind. One girl of 6 tolerated an injection of 500 mg. without the slightest general reaction. On the other hand, there was always a very slight local reaction, but nothing specific. He adds that it is remarkable that the "old" tuberculin seems to be entirely harmless for persons free from tuberculosis. It is also remarkable that the sensitive-

ness of tuberculous individuals can be increased by injections of tuberculin, while in the non-tuberculous even injections of large amounts do not produce this specific sensitizing effect.

65. **Vaginal Cesarean Section.**—Lunckenbein advocates this operation as so simple and harmless that it can be considered in private practice, especially for not too extreme cases of contracted pelvis. In many cases it is sufficient merely to incise the anterior wall of the uterus without detaching the vault of the vagina or exposing the bladder, a mere anterior hysterotomy with extraction of the fetus by the foot or with forceps.

66. **Operative Treatment of Umbilical Hernia.**—Port has applied Graser's technic in seven cases which he describes in detail, and extols the fine results, especially for very large hernia. After reduction of the hernia the superficial fascia is incised across and mobilized. The rectus muscles are then sutured, followed by transverse suture of the fascia.

73. **Passive Hyperemia in Animal Experiments.**—Frangenheim reports extensive experiments with abscesses induced on rabbits and treated with cupping glasses or application of a constricting band above the lesion. The results all seem to show that the hyperemia thus induced had no bactericidal action, while infectious processes in the bone marrow and joints were unfavorably influenced. Early or immediate application of the measures to induce hyperemia never succeeded in preventing the development of the infectious process after inoculation. The formation of pus was much increased under the constricting band and with the cupping glass, while infiltration in the vicinity of the pus focus was the rule. Suppuration, sequester formation and pigmentation were much more pronounced with the induced hyperemia than without it.

74. **Cytologic Findings in Ocular Tuberculin Reaction.**—Dietschy calls attention to the results of numerous tests which show that microscopic examination of the secretions of the eye during the conjunctival reaction to tuberculin shows a leucocyte formula which varies in the course of the reaction in a specific and typical manner. He thinks that the study of the leucocyte curve may demonstrate a reaction, sometimes, when there is no reaction to be detected by the naked eye. He, therefore, commends the "ophthalmo-cytodiagnosis" as a further improvement of the ordinary ocular reaction.

76. **Pubiotomy in the Home.**—Mueller reports a case which shows that pubiotomy can be done safely in a private house if there is no suspicion of infection and if the preparations can be made properly, with trained assistance and good conditions for after-treatment. As a rule, he advocates premature delivery as the standard operation for contracted pelvis in private practice, if it is possible to wait till the thirty-fifth week of pregnancy. If too late for this, and if the pelvis is not too small, he regards pubiotomy as a justifiable and promising operation even in the home.

77. **Rupture of the Rectum.**—Burkhardt has found fourteen cases on record of rupture of the rectum without direct external injury. In a case he reports the rectum was sound and ruptured during excessive straining at defecation. The patient was a healthy youth of 17. Laparotomy the next morning allowed the escaping fecal masses to be cleaned out, but suture of the ruptured anterior wall of the rectum could not be thoroughly depended on as the region was so difficult of access. For this reason he made an artificial anus in the iliac fossa, and the patient soon recovered. All the other cases on record terminated fatally.

78. **Roentgen Treatment Far Below the Surface.**—Dessauer suggests that it might be possible to act effectually on deep lying processes by exposing them to several tubes at different points. The rays from a tube in front focussed on the process would cross the rays from a tube at the side and another at the rear, the deep process thus feeling the effects of the three tubes, while the surface nowhere is exposed to the rays from more than one tube. Another point he emphasizes is that the longer the interval between the tube and the lesion, the less the proportion of loss of radiant energy by absorption into the superficial tissues. He describes some technical improvements in Roentgen instrumentation on these principles which, he says, allow exposure of deep seated processes as effectually as of superficial lesions.

Therapeutische Monatshefte, Berlin.

June, XXII, No. 6, pp. 273-328.

82 *Diabetic Acidosis and Treatment of Diabetic Coma. J. Baer.
83 Treatment of Chronic Obstipation. O. Simon.
84 The New Edition of the Swiss Pharmacopeia. (Die neue Pharmacopoe Helvetica (Editio quarta), vom medizinisch-praktischen Standpunkt betrachtet.) C. Bachen. Id. P. Fleissig.

82. **Treatment of Diabetic Acidosis.**—Baer reviews the present knowledge in regard to severe diabetes, and remarks that the injury is chiefly from loss of nourishing material, which is eliminated in the acidosis bodies unutilized, and from the excessive production of inoxidable acids. When the production of acids surpasses the amount which the ammonia is able to neutralize, coma is liable. If it is possible to neutralize the acids by administration of alkali, enough to render the urine alkaline, this is logical treatment, although it does not reach the source of the metabolic disturbance. Large doses of sodium bicarbonate for several days have frequently arrested the coma in children, but success is rare in adults. His experience has shown that in the fatal cases of coma in adults, notwithstanding enormous dosage of the bicarbonate, the urine never had been rendered alkaline. Injection of sodium glutate in dogs with severe phloridzin diabetes reduced or banished the acidosis, and the application of this measure in the clinic has given good results in a number of cases, although in others it failed. The question of the action of the glutaric acid is identical with the question of its oxidability in the diabetic organism. Baer and Blum are now studying this subject.

Therapie der Gegenwart, Berlin.

May, XLIX, No. 5, pp. 193-240.

85 *Two Cases of Megacolon in Children. (Hirschsprungsche Krankheit.) Kohts.
86 *Affections in Which the Pneumatic Cabinet Is Indicated. (Welche Krankheiten sind im pneumatischen Kabinette zu behandeln?) E. Aron.
87 *Symptomatology, Prognosis and Therapy of Acute Veronal Poisoning. (Veronalvergiftungen.) E. Steinitz.

June, No. 6, pp. 241-288.

88 Treatment of Severe, Chronic, Unilateral Pulmonary Affections by Compression of the Lung. (Behandlung chronischer Lungenkrankheiten durch Lungenkollaps.) L. Bauer.
89 *Interference with Heart Action by Stooping, Etc. (Beeinträchtigung des Herzens durch schlechte Körperhaltung.) M. Herz.
90 *Origin and Treatment of Asthma. A. Moeller.
91 *Dietetic Treatment of Gastric Ulcer. (Behandlung des Ulcus ventriculi mittels rationeller Küche.) W. Sternberg.
92 Influence of Phosphorus-Cod-Liver Oil on Metabolism of Lime. (Phosphorlebertran in der Therapie der Rhachitis, Sein Einfluss auf den Kalkstoffwechsel.) J. A. Schabad.
93 *The Continuous Bath in Surgery. (Das permanente Bad in der Chirurgie.) R. Mühsam.
94 Case of Gout of Testicle and Prostate. (Zur Kasuistik gichtischer Affektionen von Hoden und Prostata.) Becker.
95 Preventive Treatment of Gonorrhea in Women. H. Loeb.
96 Inflatable Pessary for Hemorrhoids and Prolapse. (Pneumopessar.) E. Schlesinger.

85. **Megacolon.**—Kohts describes two cases in boys of 3 and 6, respectively, both fatal, although great benefit followed measures to combat the coprostasis. The prognosis depends on how soon treatment is commenced. Regular evacuation of the bowels is the main point in treatment, and glycerin and oil enemas are the main reliance. Bossowski resected 50 cm. of the sigmoid flexure and the child has been well since. Biedert has stated that recovery is known in only 2 out of the 41 cases on record; 23 died while under observation, and the outcome in 11 cases is not known.

86. **Affections in Which the Pneumatic Cabinet Is Indicated.**—Aron cites in his list chronic bronchial catarrh, the relics of pleurisy, and chronic infiltration and atelectasis after caseous pneumonia. Febrile processes always contraindicate the use of compressed air. In chronic asthma and emphysema the pneumatic cabinet is not to be recommended, but it may aid in increasing vital capacity in persons of the phthisic habitus. A therapeutic influence is also not to be denied in some cases of anemia and chlorosis. The pneumatic cabinet should be merely an adjuvant to other measures; the best results are obtained in combination with a change of climate.

87. **Veronal Poisoning.**—Steinitz reports a case of chronic intoxication plus idiosynerasy, the symptoms being both nervous and an exanthema and oliguria. In three others the typical intoxication was manifested by profound unconsciousness with relatively good respiration and heart action, complete extinction of the corneal reflex, with retained reaction to light of the pupils, and relaxation of the limbs with retained tendon reflexes. The symptom-complex resembles hysteric unconsciousness. The somnolence may range from apparently natural sleep to deep coma. Especially remarkable is the absence of the corneal reflex with retained pupil reflex. The absence of contractions and the lack of a history of hysteric attacks in the past help to differentiate the condition. Chemical tests of the urine will confirm the diagnosis. In the 13 cases of veronal poisoning on record, 4 of the patients died, the amounts ingested ranging from 11 to 20 gm.; the others, who had received from 2.5 to 9 gm., all recovered. The principal danger is past after 48 hours, although in the severe cases there is danger from consecutive pneumonia. The patients in the mild cases recover without treatment. Otherwise, elimination of the poison should be promoted in every way. If the patient is seen within a few hours the stomach should be rinsed out. Still more important is the evacuation of the bowels, preferably by castor oil by the mouth and by enemas. Diuresis should be promoted, and the patient should be fed through a tube as long as swallowing is difficult. Saline infusion subcutaneously or by the rectum may be needed. If the respiration is not satisfactory, tepid baths with cold douching are advisable, especially to ward off the threatening aspiration pneumonia. Camphor and caffein will probably be superfluous but may be given as a precautionary measure. The agitation liable to develop during convalescence can be controlled by morphin, which has been called the antagonist of veronal, and can usually be given in adequate doses without apprehension.

89. **Interference with Heart Action by Stooping.**—Herz remarks that writers generally confine their study of this subject to the general circulation, rather than to the effect on the heart itself. He here describes a case in which a man of 47 presented symptoms of arteriosclerosis and myocarditis, but the trouble proved to be merely the result of long continued stooping over a desk. When the patient was trained to hold himself upright and the muscles were strengthened the pseudo heart affections vanished permanently.

90. **Treatment of Asthma.**—Moeller explains asthma as the result of irritation of the respiratory center from certain circumscribed swollen spots in the upper air passages. These spots are the source of irritation of this center. Treatment of asthma, therefore, should include tranquillization of the respiration center by suggestion, and the asthmogenic points must be sought in the nose and throat, and by cauterization made less sensitive to irritation. If they are in the bronchi this can be accomplished by inhalation of compressed air. In case cauterization is refused, potassium iodid may be tried with some sedative as indicated.

91. **Improved Dietetic Treatment of Gastric Ulcer.**—Sternberg believes that mechanical conditions, rather than chemical, are of the greatest importance in treatment of ulcer of the stomach. He gives 13 illustrations of various improved kitchen utensils which allow the food to be ground and strained while yet retaining a consistency that favors mastication. He would banish the spoon for stirring and use only the pestle. For hospitals he recommends a marble mortar worked by power or by hand for grinding the food, raw or cooked, passing it then through a hair sieve, working it through the sieve with a broad masher, not a spoon. Still more effectual is the passing of the food through a cloth. Two men hold the ends of the large cloth and force the substance through it with two heavy wooden ladles with great force. The substance then is smooth as velvet and melts in the mouth—this renders the food exceptionally digestible in the stomach. This is the way the famous French dishes "crême de gibier" and "crême de volaille" are made. The demands on the physiologic functions of the stomach are reduced to the minimum. By this preparation of the food it is practically predigested, but not in the generally accepted sense of chemical predigestion, but in the physical direction. This physicomechanical predigestion is much more important than the chemico-physiologic, at least for the upper part of the intestinal tract and most certainly for the stomach. He is confident that the introduction of high art cooking in this line would represent a great advance in the treatment of gastric ulcer.

93. **The Continuous Bath in Surgery.**—Mühsam lauds the favorable action of partial or total baths in treatment of fistulous wounds, especially after appendicectomy, and in hernia suspicious of gangrene, erysipelas with much suppuration and necrosis, especially of the testicles, and necrosis from decubitus, open tuberculosis of the joints, compound fractures and burns. He relates a number of examples in each group, warning only that the patients must be protected from drafts, and the treatment kept up until granulations develop to avoid danger of erysipelas. The continuous bath can be applied in private houses as well as in hospitals.

Virchows Archiv, Berlin.

May 7, CXCII, No. 2, pp. 193-384.

97 **Pathogenesis of Traction Diverticulum of the Esophagus.** G. Riebold. Concluded.
98 Etiology of Amyloid Degeneration. C. Davidsohn.
99 **Neoformation of Bone at a Distance from the Periosteum.** (Parostale Knochenneubildung.) H. Takata.
100 **Pneumonia Plus Yellow Atrophy of Liver in Girl of 10.** (Eigentümlich Form totaler produktiver interstitieller Pneumonie neben subakuter Leberatrophie im Kindesalter.) F. Klopstock.
101 **Two Cases of Cirrhosis of Liver in Children.** (Leberzirrhose im Kindesalter.) W. Vix.
102 **Experimental Tuberculosis of the Kidney with Induced Venous Hyperemia.** (Tuberkulose und Blutströmung.) J. Meinertz.
103 **Origin of Thrombosis in Portal Vein.** (Entstehung der Pfortader-Thrombose.) L. Lissauer.
104 **Nodose Periarteritis as Consequence of Staphylococcus Sepsis After Angina.** H. v. Bomhard.
105 The Kidneys in Pernicious Anemia. L. Paszkiewicz.
106 **Histologic Findings in Suprarenals in Arteriosclerosis.** (Nebennieren bei Arteriosklerose, sowie Befund in Nebennieren und Aorta von Kaninchen bei intravenösen Adrenalininjektionen.) J. Hornowski and W. Nowicki.
107 **Croftan's Method for Differentiating Suprarenal Tissue by Biochemical Tests.** E. Koerber.
108 **Monster with Rudiments of Heart and Head.** (Holoacardius acephalus.) R. Meyer.

Wiener klinische Wochenschrift.

June 4, XXI, No. 23, pp. 823-860.

109 **Experimental Postponement of Delivery in Rabbits.** (Experimentell erzeugte Verlängerung der Tragdauer bei Kaninchen.) A. Kreidl and L. Mandl.
110 **Diverticula in Trachea.** (Zur Kenntnis der aus den Schleimdrüsen der Trachea hervorgehenden, divertikelartigen Bildungen.) R. Maresch.
111 Etiology of Molluscum contagiosum. W. Pick.
112 **Biochemical Reactions as Clinical Tests.** (Anwendung der biochemischen Reaktionen für klinische Zwecke.) Wiczkowski, M. Selzer and G. G. Wilenko.
113 **Precipitin Reaction for Serum Diagnosis of Syphilis.** (Methodik und Verwendbarkeit der Ausflockungsreaktion für die Serodiagnose der Syphilis.) H. Elias, E. Neubauer, O. Porges and H. Salomon.
114 Technic of Amputation of Penis. O. Föderl.
115 *Efficacy of Intravenous Adrenalin-Saline Infusion. (Wert der intravenösen Adrenalin-Kochsalzinfusionen.) T. Meissl.
116 Atoxyl in Malaria. (Atoxylversuche bei Malariakranken.) R. Gonder and F. Dapas.
117 Lipoids in Pyocyanase. (Sind die bakteriziden Bestandteile der Pyozyanase Lipoide?) R. Emmerich and O. Löw. Id. H. Raubitschek and V. K. Russ. Id. K. Landsteiner.

June 11, No. 24, pp. 861-892.

118 **Temporary Suspension of Tuberculous Allergy During Measles.** (Verlauf der tuberkulösen Allergie bei einem Falle von Masern und Miliartuberkulose.) C. v. Pirquet.
119 *Diarrhea in Exophthalmic Goiter. (Durchfälle bei Morbus Basedow.) H. Salomon and M. Almagia.
120 Indications for Operations on Nasal Septum. (Indikationsstellung der Nasenscheidewandoperationen.) L. Rethi.
121 *Trigeminal Neuralgia from Changes in Teeth. (Trigeminusneuralgien hervorgerufen durch Veränderungen an den Zähnen.) W. Wallisch.
122 Connection Between Cutaneous Tuberculin Test and Presence of Antibodies. (Beziehung der Pirquetreaktion zum Gehalt an Antikörpern. Perlsucht-Pirquet.) W. Czastka.

115. **Intravenous Adrenalin-Saline Infusion.**—Meissl has applied this measure in two cases of severe collapse after puerperal hemorrhage. The results were excellent, tiding the patient past the danger point in acute anemia. The effect is transient, but the infusion can be repeated, thus stimulating the heart action and the vasomotor center until the organism

can bring up its reserves. The prospects are naturally better in acute anemia than in infectious diseases, but even in the latter, intravenous adrenalin-saline infusion is liable to prove a life-saving measure. He repeated the infusion two or three times in his cases. The patients were young women who had recently aborted; one was a septic case.

119. **Diarrhea in Exophthalmic Goiter.**—Salomon reports two cases of fat diarrhea in the course of exophthalmic goiter. In one it was referable to concrements obstructing the smaller passages in the pancreas. In the other case it was evidently the result of disturbance in the absorbing faculty of the intestine. The conditions in the stools in regard to the fat were similar to those in isolated disturbances of the absorption of fat in neurasthenics.

121. **Trigeminal Neuralgia from Changes in Teeth.**—Wallisch regards neuralgia in younger persons, when the pain is restricted to one branch of the second or third branch of the trigeminus nerve, as suspicious of a dental origin. The pains are more diffuse than in ordinary neuralgia; they do not seem to follow the track of the nerve, and they vary in intensity without ever disappearing completely. He relates a number of instances in which a tooth was responsible for severe neuralgia, although the dentist could discover nothing wrong in the teeth. Teeth with a filling in the root are peculiarly suspicious, even when they are apparently entirely free from all reactions; he does not exclude them until removal of the filling and leaving the cavity open for a time—inserting a little cotton during eating—fail to give relief. In one severe case the pain was in the temple and vertex. The more the neuralgia is restricted to the smaller ramifications, the more one is justified in assuming a peripheral cause, possibly an unsuspected non-irrupted tooth. Inflammation in the maxillary antrum is often a source of facial neuralgia as also rheumatic, hysteric and similar disturbances. The neuralgia is often referred to the ear.

Zentralblatt für Chirurgie, Leipsic.

June 13, XXXV, No. 24, pp. 729-752.

123 Improved First-Aid Package for the Field. (Verbesserung des Verbandpäckchens für den Feldsoldaten.) Deeleman.

Zentralblatt für Gynäkologie, Leipsic.

June 6, XXXII, No. 23, pp. 761-784.

124 *Puerperal Pyemia Cured by Ligation of Pelvic Veins. (Fall von puerperaler Pyämie geheilt durch Unterbindung der Beckenvenen.) G. Friedemann.
125 *Etiology of Retroflexion of Puerperal Uterus. R. Ziegenspeck.
126 Indications for Pubiotomy. H. Peham.

June 13, No. 24, pp. 785-816.

127 *Scopolamin-Morphin Anesthesia in Gynecology. H. Sieber.
128 High Forceps for High Transverse Facial Presentation. (Zum hohen Querstand der Gesichtslage.) R. Ziegenspeck.
129 Protection of Perineum. (Dammschutz.) Nacke.

124. **Puerperal Pyemia Cured by Ligation of Pelvic Veins.**—This is the second case reported by Friedmann. The patient was a ii-para of 27 with pyemia after abortion. The ligature was applied in the midst of the thrombosed region: it was impossible to apply it higher. The operation lasted two hours, although merely the hypogastric vein was isolated and ligated. The case teaches that the operation may accomplish its purpose, even under unfavorable conditions. There seems to be an aseptic thrombosis preceding the spread of the septic process in the vessels; this would have become infected if it had not been for the ligature, unless the newly formed thrombus had become organized in time before infection had reached it. This might possibly have allowed spontaneous recovery.

125. **Etiology of Retroflexion of Puerperal Uterus.**—Ziegenspeck calls attention to the unsuspected frequency of retroflexion in young women and girls and of retroflexion due to inflammation and adhesions in the vicinity, and also to the frequency of cases in which the retroflexion is the result of too long lying on the back or of overfilling of the bladder or of both combined. All these causes may cooperate in the first childbirth. He thinks it wise to have the parturient woman lie on her side. In regard to getting up early he knows of two recent fatalities in a country district the result of getting up at once after delivery. In the clinic the overfilling of the bladder and incipient parametritis are discovered and remedied at once, but this is not the case in private practice. He has made it a rule to examine every puerpera in from eight to twelve weeks after delivery, and has thus been able to detect many displacements and cases of retroflexion, and by prompt treatment to restore conditions to normal. This would have been impossible a few weeks later on account of the stronger adhesions. He insists on the examination, even when the patients are entirely free from symptoms or inconveniences of any kind. The first childbirth requires special attention in this respect, and he agrees with Olshausen that every primipara should be examined at the fourth week and again later to detect any tendency to retroflexion. He finds massage useful in treatment.

127. **Scopolamin-Morphin Anesthesia in Gynecology.**—Sieber states that at the Marburg gynecologic clinic scopolamin and morphin were used in 88 cases for general anesthesia or as a preparation for it. It was noticed that in 32 cases the pulse was increased from 20 to 50 beats a minute, and this acceleration lasted into the second or third day. If all the cases were included in which the pulse was increased by 10 or 20 beats, it would make a proportion of 65.6 per cent. in which this anomaly was observed. He ascribes this protracted effect on the pulse to injury of the heart by the scopolamin. He has since abandoned this technic: for one reason because the high pulse and frequent elevation of temperature render it impossible to differentiate the action of the scopolamin from a beginning infection. He advocates subcutaneous injection of 0.01 gm. (0.15 grains) morphin twenty minutes before spinal anesthesia as the preferable technic. He thinks that two poisons are enough at a time instead of the four sometimes used with scopolamin technic, exclaiming: "Away with this unreliable, generally useless, dangerous poison for general anesthesia."

Gazzetta degli Ospedali e delle Cliniche, Milan.

May 24, XXIX, No. 62, pp. 649-664.

130 Pulse in Peritonitis and Ileus. (Polso nella peritonite acuta e nell' occlusione intestinale.) A. Rossi and D. Maragliano.
131 Radioactivity of Mineral Waters. (Fonte Bracca.) U. Prati.
132 Tricuspid Incompetency and Compensation. G. Binetti.
133 *Intoxication from Quinin. (Prove e deduzioni pratiche sulla intossicazione chinica del Tomaselli.) G. C. Matarazzo.
134 *Exophthalmic Goiter. (Gozzo esoftalmico.) A. Cantieri.

May 31, No. 65, pp. 681-696.

135 Disturbances in Portal Circulation from Mere Congestion of Bile. G. Ghedini.
136 *Oatmeal in Treatment of Diabetes. (L'avena nella cura del diabete mellito.) G. A. Pari.
137 *Pathogenesis of Gout. (Gotta.) T. Silvestri.

June 7, No. 68, pp. 713-728.

138 Immunizing Properties of Diplococcus Cultivated on Organ Extracts. (Proprieta immunizzanti del diplococco coltivato su estratto organico.) A. Barlocco.
139 Diagnosis and Prophylaxis of Lead Poisoning. (Saturnismo.) G. Massini.
140 Negative Results of Stretching the Nerve for Perforating Ulcer of the Foot. (Stiramento dei nervi plantari come preteso metodo di cura dell'ulcera perforante del piede.) G. Alessandro.

133. **Intoxication from Quinin.**—Matarazzo has found that persons who react to quinin with serious hemoglobinuria and other alarming symptoms are able to tolerate effectual doses of quinin if it is administered by the hypodermic route, as he shows by six examples from his own experience and some from others'. He has observed cases of serious quinin intoxication in persons free from malaria. In one instance the entire train of symptoms of threatening quinin intoxication occurred spontaneously in an attack of malaria; no quinin had been taken for a month. In severe quinin intoxication he gives tonics for the heart and kidneys, rejecting ergot, believing that it "tetanizes" the kidney functioning.

134. **Exophthalmic Goiter.**—Cantieri reports a severe case in which a cure followed repose, tonics, electricity and the use of the milk of thyroidectomized goats. He operated on the animals himself, not trusting to commercial preparations as no benefit seemed to be derived from their use in this case. The patient was a woman of 30, unmarried.

136. **Oatmeal in Diabetes.**—Pari reports a case of diabetes with the metabolic findings while oatmeal was being taken according to von Noorden's technic. They show the advantages of the oatmeal. The patient was a young man. It

seems evident that the starch of the oatmeal has some specific physiologic action different from other starches.

137. **Pathogenesis of Gout.**—Silvestri presents arguments to prove that gout is the result of perverted functioning of the lymph-producing apparatus. The consequence is disturbance in the metabolism, especially in that of nuclein. He explains the acute attack as an accident intercurrent in the slow, chronic development of tophi. It is distinguished from acute articular rheumatism by its special site and by the more intense participation of the soft parts in the inflammatory process. The prodrome, the general symptoms and nitrogen metabolism show that there is toxigenic destruction of albumin, as in any acute infectious disease. The presence of uric acid gives the inflammation its specific character. The big toe has the most weight to bear and it is farther from the heart than any other joint, which favors the deposit of urates, while it is particularly exposed to trauma and constant pressure. The urates are deposited where the circulation is most sluggish, and thus prepare the soil for the joint lesion, so that gout affects predominantly the smaller, remote joints while acute articular rheumatism settles in the larger joints. He regards the perverted functioning of the lymph-producing organs as a congenital anomaly. The acute attack of gout is not a necessary effect, but an episode favored by the uric acid diathesis.

Policlinico, Rome.

June 7, XV, Practical Section, No. 23, pp. 709-740.

141 Anastomosis and Transplantation of Vessels. (Anastomosi e trapianti dei vasi sanguigni.) V. Nicoletti and A. Curcio.

June 14, No. 24, pp. 741-772.

142 Picric Acid in Trachoma. M. Scellingo.

June, Surgical Section, No. 6, pp. 241-288.

143 Case of Isolated Comminuted Fracture of Atlas. V. Quercioli.

144 Primary Sarcoma of Liver. (Sarcomi primitivi del fegato.) G. Bertelli.

Hospitalstidende, Copenhagen.

May 6, LI, No. 19, pp. 521-552.

145 Case of Secondary Abdominal Pregnancy with Living Child at Term. (Sekundært Abdominalsvangerskab med levende, fuldbaarent Barn.) S. Horneman.

146 Head Holder for Autopsy Work. (Apparat til at fixere Hovedet med ved Sektioner.) O. Horn.

Nordiskt Medicinskt Arkiv, Stockholm.

April 30, XL, Internal Medicine, No. 4.

147 *Syphilis of the Lung in Adults. (Lungensyphilis bei Erwachsenen.) G. Hedren.

148 *Diagnosis of Uterine Cancer and of Late Syphilis of the Uterus. (Diagnose du cancer utérin et de la syphilis tardive de l'utérus.) F. Howitz.

147. **Syphilis of the Lung.**—Hedren describes the autopsy findings in a case of syphilis with multiple gummata on the skin, fibrous endocarditis and interstitial pneumonia of the right lung, the latter evidently a syphilitic process as there were no signs of tuberculosis or other explanation for the unilateral lesion.

148. **Syphilis of the Uterus.**—Howitz comments on the serious consequences that might be entailed by mistaking a gumma of the cervix for cancer. In a recent case a woman of 32, with three children, the youngest 4 years old, had a small tumor on the cervix which was excised and declared to be an epithelioma. Less than three years later she returned with an apparent recurrence of the tumor but on the opposite side of the anterior lip of the external os. This tumor was also excised and again the microscope confirmed the assumption of epithelioma, although the shape and consistency suggested rather a fibroma. The fact that the recurrence had developed at another point was suspicious, and Howitz then discovered that the patient had acquired syphilis at 17. She had been thoroughly treated and had been in perfect health since. The most minute examination failed to reveal any signs of it except, possibly, the uterine affection. A course of potassium iodid was instituted and the woman has since passed through a normal pregnancy. No spirochetes could be found in the placenta or any signs of syphilis. He mentions parenthetically Bergh's statement that during the thirty-eight years in which he was in charge of the hospital for prostitutes he encountered only one case of cancer of the uterus among them. Howitz suggests that this seems to indicate that thorough and repeated specific treatment of the syphilis—such as these prostitutes received, nearly all having contracted syphilis early in their careers—may have a prophylactic action against the development of cancer later. In the case described, Howitz decided to regard the uterine tumors as a tertiary manifestation of syphilis and has had no cause to regret his action during the three years since. The mother and children are in the best of health and the woman was saved a severe mutilating operation. The tumors were hard, resistant, circumscribed and indolent.

Books Received

Acknowledgment of all books received will be made in this column and this will be deemed by us a full equivalent to those sending them. A selection from these volumes will be made for review, as dictated by their merits, or in the interests of our readers.

PRACTICAL MEDICINE SERIES (VOL. V), OBSTETRICS. Edited by Joseph B. DeLee, A.M., M.D., Professor of Obstetrics, Northwestern University Medical School. Cloth. Pp. 228. Price, $1.25. Chicago: Year Book Publishers, 1908.

CONTRIBUTIONS TO THE SCIENCE OF MEDICINE AND SURGERY. By the Faculty in Celebration of the Twenty-fifth Anniversary of the Founding of the New York Postgraduate Medical School and Hospital. Paper. Pp. 485.

FIFTY-FIRST ANNUAL REPORT OF THE WILMINGTON INSTITUTE, Wilmington, Del., Including the Fourteenth Annual Report of the Wilmington Institute Free Library. Paper. Pp. 36. Wilmington: Charles L. Story.

NEW HOSPITALS NEEDED IN GREATER NEW YORK. Recommendations by the Standing Committee on Hospitals of the State Charities Aid Associations. By Mr. Phil P. Jacobs. Paper. Pp. 83.

TWENTY-SECOND ANNUAL REPORT OF THE OHIO DAIRY AND FOOD COMMISSIONER for the Fiscal Year Ending Nov. 15, 1907. Paper. Pp. 72. Columbus: F. J. Heer.

AMBULANCE SERVICE IN GREATER NEW YORK. A Report on Present Conditions. By Mr. Phil P. Jacobs. Paper. Pp. 36.

SIXTH, SEVENTH AND EIGHTH ANNUAL REPORTS OF THE HAHNEMANN HOSPITAL, Scranton, Pa. Paper. Pp. 77.

TRANSACTIONS OF THE FLORIDA MEDICAL ASSOCIATION for the Year 1908. Paper. Pp. 304.

NEW PATENTS.

Recent patents of interest to physicians:

889171. Formic-aldehyde preparation and making same. H. S. Blackmore, Mount Vernon, N. Y.
888869. Inhaler. F. I. Clark, Baltimore.
888477. Urinary apparatus. V. D'Incognito, Chicago.
888996. Vibrator. M. K. Golden, Chicago.
888490. Flexible corrective brace and brace-frame. G. W. Haas, Los Angeles, Cal.
889022. Syringe. J. Kinsel, Philadelphia.
889154. Medical appliance. S. Rolfson-Schmidt, Fairground, N. Y.
889156. Physician's case. P. Ruehlmann, Philadelphia.
888758. Making medicinal composition. J. C. Slack, Clayton, N. Mex.
889424. Spraying nozzle. S. H. Adams, Fulford, near York, Eng.
889203. Medicine dropper. J. A. Clifton, Orangeburg, S. C.
889662. Surgical instrument. C. N. Coulter, Traverse City, Mich.
889361. Suture and ligature container. H. A. Flanders, Boston.
889541. Crutch. G. B. McConnell, Houston, Pa.
889542. Electromedical battery. E. T. Otto, Jersey City, N. J.
889810. Medicating and massaging appliance. H. Robinson, Waco, Texas.
889827. Elastic woven bandage. W. J. Teufel, Stuttgart, Germany.
889738. Medicine measure. A. R. Weber, Hammond, Ind.
890484. Apparatus for administering oxygen or the like. G. von Ach, Newark, N. J.
890018. Dose stopper. A. W. Burt, Roselle Park, N. J.
890407. Invalid bed. G. B. Colles, Harriman, Tenn.
890029. Massage instrument. W. H. De Camp, Fort Wayne, Ind.
890068. Fracture apparatus for stretching parts of the human body. M. Koehler, Hohenlohehutte, Germany.
890289. Oxygen-cutting apparatus. H. P. Merriam, New York.
889964. Therapeutic apparatus. T. Powell, Los Angeles, Cal.
890452. Truss. J. Q. A. Remine, Greenville, Tenn.
890580. Ophthalmometer. J. H. Sutcliffe, London, Eng.
890842. Clavicular apparatus. R. H. Cheatham, Denver.
890975. Breast pump. J. S. Gilbert, Portland, Ore.
890650. Combined wardrobe and disinfecting cabinet. A. S. Hitchcock, Franklin, Pa.
891176. Metabolizer. J. von der Kammer, Washington, D. C.
890912. Soda fountain. C. F. Kurz, Cleveland, Ohio.
890990. Syringe. A. E. Macdonald, San Francisco.
891181. Inflatable bandage. P. Mitchell, Rock Island, Ill.
890681. Bed-pan. M. Moore, Marble Rock, Iowa.
890709. Liquid-actuated vibrator. C. H. Richwood, Boston.
890883. Burner nipple pricker and cleanser. S. Spiller, Rockhamton, Queensland, Australia.
890885. Device for turning nursing-nipples. E. L. Stuart, and S. A. Conine, New Hamburg, N. Y.
890822. Therapeutic vibratory apparatus. J. M. Tourtel and G. L. Hogan, London, Eng.
39362. Design, poison bottle. W. V. Johnston, Thermopolis, Wyo.